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ABSTRACT

The purpose of this report is to aid the use of the computer simulation model, CAMPUS-M, in 4 specific areas: (1) the conceptual modeling of the institution; (2) the preparation of machine readable input data; (3) the preparation of simulation and report commands for the model; and (4) the actual running of the program on a CDC 6600 computer. Information is presented on: (1) the background of CAMPUS-MINNESOTA (CAMPUS-M); (2) its purpose and scope; (3) its operational characteristics; (4) the input data specifications for: the cost center structure, the program structure, specialty types, resource combinations, and functional bases for the calculation of indirect resources at a cost center; and (5) output report specifications, including the input data report index, cost center output report index, and overtime report index. (AF)

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Project PRIME Report No. 12

CAMPUS-MINNESOTA

USER INFORMATION MANUAL

by

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Project PRIME Research Coordinated by the
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Preface

The purpose of this report is to aid the use of the computer simulation model, CAMPUS-M, in four specific areas:

1) The conceptual modelling of the institution.
2) The preparation of machine readable input data.
3) The preparation of simulation and report commands for the model.
4) The actual running of the program on a CDC 6600 computer.

It will be assumed that the reader is familiar with the overall concept of simulation and of university operations. An overview of the CAMPUS Model can be obtained by reading Project PRIME Report Numbers 2 and 10.

Much of the material contained herewith comes from CAMPUS V Input Instructions, Systems Research Group, Toronto, Ontario. David Cordes wrote an earlier draft of input instructions and his work is incorporated in this manual. Milton (Sam) Fisher prepared the deck structure and loading instructions.

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CAMPUS-MINNESOTA

User Information Manual

1. BACKGROUND

1.1. Name

CAMPUS-MINNESOTA is a computer simulation program used in university planning and currently is operational on the University of Minnesota's CDC 6600 computer. It is similar in user characteristics to CAMPUS-V which was developed for the IBM 360/85 computer by the Institute for Policy Analysis in the University of Toronto and the Systems Research Group in Toronto.[1/]

1.2. Development

CAMPUS-MINNESOTA was the primary activity of Project PRIME (Planning Resources In Minnesota Education). PRIME was a one-year project (July 1, 1970 to June 30, 1971) jointly funded by the Minnesota State College System, Minnesota Junior College System, the University of Minnesota, the Hill Family Foundation, and the Minnesota Higher Education Coordinating Commission [See Project PRIME Reports 1 and 2].

2. PURPOSE AND SCOPE

2.1. General Description

CAMPUS-MINNESOTA allows the modeling of a university in the following terms:

1. The university is a system through which students flow.
2. Students participate in various programs (majors) and in particular courses at given rates (specified by the modeller). They advance, drop-out, and transfer to other programs, all at stated rates.
3. Students' participation in courses creates demand for rooms, staff, special equipment, etc. Such demands are automatically tallied by CAMPUS-MINNESOTA.

[1/] Systems Research Group, The Development and Implementation of CAMPUS: A Computer-Based Planning and Budgeting Information System for Universities and Colleges, August 1970.

2.2 Uses

The CAMPUS-M simulator can be used at any level of aggregation or detail that is useful for the particular decisions that are being considered. If a department chairman or a dean is considering the impact of changes in class size and core requirements in a degree program, the instructional activities in the model should be detailed to the actual course. On the other hand, if one is interested in University wide budget planning for programs and cost centers, it will probably be sufficient to aggregate all courses by discipline within level[1] (lower division, upper division etc.).

As with all simulation models, "its real value depends on the ability of the user to recognize situations in which the model can be used and to devise alternatives for investigation."[2] The developers of CAMPUS suggest five different problem areas where the model may be a valuable tool for analysis:[3]

1. SCALE OF OPERATIONS - Problems in this area are mainly concerned with the impact of altering the levels at which various programs are carried out. Typical investigations would assess the impact of changing student enrollment or student graduation goals.
2. GENERAL STRUCTURAL DECISIONS - Structural decisions occur on two levels. The first of these concerns the composition of the institution itself in terms of the educational and research programs that are pursued by the university. The second level of structural decisions occurs within the program level and is concerned with the activity composition of the program. Alterations of this kind involve adding or deleting particular activities.
3. PEDAGOGICAL DECISIONS - A number of decisions relating to activities have to be made with respect to the way in which they are going to be carried out. For instructional activities these might include class sizes, the type, qualifications and mixture of staffing to be used, and teaching equipment, (TV, CAE) requirements.
4. ADMINISTRATIVE DECISIONS - The various activities place loads on the cost centers or departments and these departments have a number of administrative decisions that must be made. Such matters as professional staffing policy, use of support staff, renumeration and tenure policy and various other financial and administrative questions need to be assessed.
5. GENERAL POLICY - General policy decisions can be characterized as university level administrative decisions. Such matters as a change in the semester system, addition of new schools and faculties, and the introduction of new scheduling techniques are representative of the kinds of decisions faced at this level.

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[1] For further discussion of discipline-level classification, see Gulko, Warren W., Program Classification Structure, WICHE, Boulder, Colorado, June 1970.

[2] Systems Research Group, Seminar on University Administration, March 17 and 18, 1969.

[3] Ibid.

2.3. Limitations

Specific limitations on input are detailed in section 4 (Input Data Specifications) of this report. In general, the limitations that are the major restraints are as follows:

1. The model is limited to 32 activities per curriculum (Program and quarter).
2. There can only be 200 curriculum in total.
3. The combinations of curriculum and activities cannot exceed 3600. Consequently, there cannot be 200 curriculum, each with 32 activities since this would total 6400. This means there can only be 450 program 02 cards, since the activities for a curriculum go in sets of 8 per card.

These constitute the major restraints. Activities are limited to 1,000, but this is not a big problem because activities can be aggregated when modeling larger systems.

Cost centers are limited to 25 and programs to 80. Both of these restraints present problems when one is working with larger systems.

3. OPERATIONAL CHARACTERISTICS

3.1. The SCØPE[1/] initialization phase.

During this phase, the SCØPE operating system readies the 6600 for a CAMPUS/M run. We control this initialization phase with what are known as SCØPE Control cards (see example deck structures for placement of these control cards).

3.2 The CAMPUS-M execution phase.

When SCØPE is finished initializing the system for a CAMPUS-M run, it passes control of the computer to the CAMPUS-M program which has been loaded into the memory of the computer. Basically the CAMPUS-M model can perform each of the following tasks:

a. Read Input data from cards or tape (which one is controlled by how we initialize during the SCØPE phase), Input data describes to the model the institution we wish to simulate.
b. Read Report requests from cards or tape (from the same file where the Input data resides) these report requests tell the model which reports are wanted.
c. Print Input Data Reports as requested. These reports are an aid to checking out input data for correctness.
d. Simulate the institution described by the Input data and print the output reports requested.
e. Read Experiment data which will modify the Input data already loaded.

1/ SCØPE is the operation system for the CDC 6600. Users unfamiliar with SCØPE are referred to chapters 5, 6 and 7 in the U.C.C. Computer Manual.

f. Print Over Time reports which are requested and cause the simulation to stop.

The above 6 tasks are controlled by what are known as level one commands which are read by CAMPUS-M from the card reader (see example deck structures for placement of the level one commands).

The level one commands are:

INPUT - (in cols. 1-5) reads an input data deck (the input data must terminate with a LAST card (cols. 1-4)). CAMPUS will continue to simulate using this data until new input data is read in.[1]

REPØRT - (in cols. 1-6) reads a report control deck (must terminate with a LAST card). CAMPUS will continue to output the reports requested by this deck until a new report request deck is inputted.

DATA - (in cols. 1-4) causes the input data reports previously requested to be outputted.

SIMULATE - (in cols. 1-8) will simulate for one year with the previously loaded data, and print the previously requested output reports.

EXPE - (in cols. 1-4) will cause an experiment deck to be read and modifications made to the already inputted data. The experiment deck must end with a LAST card.

FINISH - (cols. 1-6) causes the previously requested overtime reports to be outputted and CAMPUS-M to give up control to SCØPE operating system for the SCØPE file processing phase to be described shortly.

In addition to the above level one commands which control the basic CAMPUS tasks 3 more level one commands are available. They are:

MESSAGE - (cols. 1-7) causes input data cards to be listed as they are read, and sub-routine traces to print. This is useful for debugging.

NØMESSAGE - (cols. 1-9) cancels the effects of the level one command MESSAGE. If neither MESSAGE nor NØMESSAGE is used NØMESSAGE will be assumed.

PRØGDATA - (cols. 1-8) captures data for Program costing on tape.

When control passes to CAMPUS-M from SCØPE, CAMPUS reads the first level one command (usually INPUT) and performs the specified task. When the task is completed the next level one command is read and its associated task performed and so on until FINISH is encountered, at which time control passes back to SCØPE, and the file processing phase begins.

3.3 The SCØPE file processing phase.

Several files are created by a CAMPUS-M run that are of interest to the

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[1] In all these cases only the actual data or reports which you wish to change need be inputted after the first call to INPUT or REPORT. Otherwise, CAMPUS will use the data entered on the first call.

they are:

- ØUTPUT - all reports are written to this file.
- TAPE30 - all reports are written to this file
- ØUTPUT file (by MESSAGE level one command) are written to this file.
- TAPE64 - data for program costing is written to this file (by first level command PRØGCØST).

During the SCØPE file processing phase, the files are disposed of. ØUTPUT is automatically processed to the line printer unless it is destroyed by a SCØPE control card.[1] If it is desired to have microfilm instead of paper output it is necessary to rewind the ØUTPUT file (by a SCØPE control card), process it to microfilm[2] and then destroy it, or it will also be processed to the printer.

If it is desired that the files TAPE30 and/or TAPE64 last past the end of the job they must be requested as tapes during the SCØPE initiation phase[3] since by default SCØPE will initialize them as temporary disk files which disappear at the end of the job.

3.4 Sample CAMPUS-M Runs

RUN 1 (refer to Figure 1).
Run description:

- 1 year simulation
- Input Data Reports
- Output to be printed.

SCOPE Initialization Phase (number in parenthesis refer to card numbers on the figure).
The first task scope performs is to copy the CAMPUS INPUT and REPØRT decks to a disk file called TAPE1 to be used as input to the image doubling program[4] (2). The image doubling program "PRØGRAM SAM" (18) is compiled

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[1] See UCC Users Manual, Chapter 5 for information about the special-to-SCØPE file name ØUTPUT. Also see U.C.C. Users Manual Chapter 6 p. 21 for information on destroying the ØUTPUT file.

[2] See the writeup MF501 available from the U.C.C. for information about microfilm output. Also see U.C.C. Users Manual 6-26; 6-27.

[3] See U.C.C. Users Manual 6-24 thru 6-25 for tape file requests.

[4] CAMPUS input data and report requests must be doubled (i.e., two copies of each card) the first is read to determine what specific format is needed to decode the card. The second image is read with that specific format. If the data cards (including LAST cards) are prepared this way, there is no need for a doubling program, hence control cards 3, 4, 5 may be deleted and card (2) must be changed to CBR (INPUT, TAPE9, 1). "PRØGRAM SAM" must also be deleted. All else remains the same.

(14) and loaded and executed (5). This results in doubled CAMPUS input and report decks residing on a disk file called TAPE9. Next a tape (SN1799) containing the CAMPUS-M program in absolute overlay format is called for and given the file name ABS (6). This file along with the disk file ØVLIB is rewound (7). The CAMPUS-M program is then copied to the disk file ØVLIB since the overlay fetching scheme built into CAMPUS-M expects the overlays to reside on a random file called ØVLIB(8).[1] The tape drive is returned (9) and the Input data file is rewound (10). The first overlay of CAMPUS-M is loaded and control is passed to CAMPUS by SCØPE (11).

CAMPUS-M Execution Phase

Upon gaining control of the computer, the Main program in CAMPUS reads the first level one command (20-INPUT) which causes the ZERØIN and INPMØD series of overlays to be executed[2] (ZERØIN zero's out arrays and INPMØD reads the first data deck from TAPE9). Control then passes back the main program which reads the next level one command (21 - REPØRT). Control is then passed to RPTCØN which reads the report control deck which informs the model which reports are wanted. Control passes back to the main routine and the next level one command is read (22-DATA). Control is passed to the module INØUT which writes the input data reports requested to the ØUTPUT file. Control reverts back to the main program and the next level one command is read (23-SIMULATE). Control then passes to SIMCØN which controls the simulation for 1 year during which output reports (if requested in the report deck) are written to the ØUTPUT file. At the end of the year's simulation control passes to ØVTIME which writes summary data to a disk file called TAPE18. This summary data is used in the preparation of Øvertime reports. Control then reverts to the main module which reads the last level one command (24 - FINISH). Control is again passed to ØVTIME which checks to see if overtime reports have been requested. If they have, they are written to the ØUTPUT file and control passes back to the main module. If not, control passes directly back to main. CAMPUS then gives up control to SCØPE (which writes "STØP 11" in the day file) for file processing.

SCØPE File Processing Phase

Since there are no more SCØPE control cards after the card (ØVLIB.) which gave control to CAMPUS only default file processing takes place. This means that the ØUTPUT file is printed and that TAPE30 and TAPE64 (which is empty since the level one command PRØGCØST was not encountered) are lost.

RUN 2 (refer to Figure 2).
Run description:

- 4 years in length.
- Input data reports.
- Input at the beginning of the 1st, 2nd, and 3rd years.
- Output to be printed.

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[1] For more information see CAMPUS-M Programmers Information Manual.

[2] Zeroin is only executed once a run and read's PARA cards which are placed first in the first input data deck.

SCØPE Initialization Phase

Same as run 1

CAMPUS Execution Phase

Same as run 1 except that after the first year's SIMULATE there is an INPUT which causes more data to be read from TAPE9. The next first level command (25 - SIMULATE) causes CAMPUS to simulate for a second year. The reports printed for the second year would be those requested for the first year (if you wish to vary reports for different years, you must read a report deck with the first level command REPØRT before the SIMULATE for the year you wish to change reports). All data will remain unchanged from the first year except that specific data which was read in by the second INPUT. After the second year's simulation there is a third INPUT-SIMULATE pair (26, 27) causing more input to be read and the third year's simulation to take place. The main module then encounters a SIMULATE (28) since no new data was called for the model uses the third year's data for this fourth simulation. The reports for the 4th year will probably look different than for year 3, however, unless the model has reached a steady state. Usually, at the least, you would want to input different numbers of new students before each SIMULATE.

SCØPE File Processing Phase

Same as run 1.

RUN 3 (refer to Figure 3).
Run description

- 4 years in length
- input data reports
- input prior to 1st, 2nd and 3rd years
- experiment deck read in prior to 4th year
- reports changed prior to 4th year

SCOPE Initialization Phase

Same as run 1

CAMPUS Execution Phase

Same as run 2 for first three years. Prior to simulating for the fourth year the first level command EXPE (30) is encountered which results in an experiment deck being read in and the CAMPUS data modified according to the directives in the experiment deck.[1] Assuming that the experiment deck made some structural changes in the institution being modeled it is reasonable to assume that different reports are now desired so a new deck of report requests is now read (REPØRT - 31) from TAPE9 before the fourth simulation year (SIMULATE-32).

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[1] At the time of this writing, the experimental modules have not been fully checked out. The user is cautioned to check his output closely when using this command.

SCØPE File Processing Phase

Same as run 1.

RUN 4 (refer to Figure 4).
Run Description

- 1 year in length.
- input data reports requested.
- program costing data requested (and saved on tape).
- output reports to be put on microfilm and not printed.

SCØPE Initialization Phase

The same as run 1 except that TAPE64 (the program costing data file) has been requested as a physical tape (10).

CAMPUS Execution Phase

The same as run 1 except that prior to the simulation the first level command PRØGCØST is encountered (25) which causes program costing data to be written to the file TAPE64 during the simulation (recall that during the initialization phase this file had been requested as a physical tape, if it had not been then it would by default be a temporary disk file which would have been lost at job termination unless further action was taken during the file processing phase).

SCØPE File Processing Phase

The ØUTPUT file is rewound (13), and processed to microfilm (14). Since printed output is not desired the ØUTPUT file must be destroyed (15), since at job termination this file is automatically processed to the printer. Since TAPE64 is an actual physical tape no action is needed at this point to save it.

Figure 1

	6	
(25)	7	
	8	
	9	
(24)	FINISH	First level commands to control CAMPUS execution.
(23)	SIMULATE	
(22)	DATA	
(21)	REPØRT	
(20)	INPUT	
	7	
(19)	8	
	9	
(18)	PRØGRAM SAM (See Appendix 1 for listing)	FØRTRAN program to take data copied to TAPE 1 and double the images on disk file TAPE9.
	7	
(17)	8	
	9	
(16)	LAST	Copied to disk file named TAPE1 by Control card (2).
(15)	REPØRT REQUEST DECK	
(14)	LAST	
(13)	INPUT DATA DECK	
	7	
(12)	8	
	9	
(11)	ØVLIB.	SCØPE Control Cards
(10)	RTAPE9)	
(9)	RU(ABS)	
(8)	CBF(ABS,OVLIB,1)	
(7)	R(ABS, ØVLIB)	
(6)	REQUEST ABS, HI, DW, SN1799(CAMPUS)ØUT	
(5)	LGØ.	
(4)	RUN(S)	
(3)	R(TAPE1, TAPE9)	
(2)	CBR (INPUT, TAPE1, 1)	
(1)	JØB CARD	

Figure 2

	6	
(30)	7	
	8	
	9	
(29)	FINISH	First level commands to control CAMPUS execution.
(28)	SIMULATE	
(27)	SIMULATE	
(26)	INPUT	
(25)	SIMULATE	
(24)	INPUT	
(23)	SIMULATE	
(22)	DATA	
(21)	REPØRT	
(20)	INPUT	
	7	
(19)	8	
	9	
(18)	PRØGRAM SAM (See Appendix 1 for listing)	FØRTRAN Program to take data copies to TAPE1 and double the images on disk file TAPE9.
	7	
(17)	8	
	9	
(16)	LAST INPUT DATA DECK	copied to disk file named TAPE1 by control card (2).
(15)	LAST INPUT DATA DECK	
(14)	LAST REPØRT REQUEST DECK	
(13)	LAST INPUT DATA DECK	
	7	
(12)	8	
	9	
(11)	ØVLIB	SCØPE Control Cards
(10)	R(TAPE9)	
(9)	RU(ABS)	
(8)	CBF(ABS, ØVLIB,1)	
(7)	R(ABS,ØVLIB)	
(6)	REQUEST ABS, HI,,DW,SN1799(CAMPUS)ØUT	
(5)	LGØ.	
(4)	RUN(S)	
(3)	R(TAPE1, TAPE9)	
(2)	CBR(INPUT, TAPE1, 1)	
(1)	Job Card	

Figure 3

	6	
(34)	7	
	8	
	9	
(33)	FINISH	First level commands to control CAMPUS execution.
(32)	SIMULATE	
(31)	REPØRT	
(30)	EXPE	
(29)	SIMULATE	
(28)	INPUT	
(27)	SIMULATE	
(26)	INPUT	
(25)	SIMULATE	
(24)	DATA	
(23)	REPØRT	
(22)	INPUT	
	7	
(21)	8	
	9	
(20)	PRØGRAM SAM (See Appendix 1 for listing)	FØRTRAN Program to take data copied to TAPE1 and double the images into disk file TAPE9.
	7	
(19)	8	
	9	
(18)	LAST REPORT DECK	Copied to disk file named TAPE1 by control card (2).
(17)	LAST EXPE DECK	
	LAST INPUT DECK	
(15)	LAST INPUT DECK	
(14)	LAST REPORT REQUEST DECK	
(13)	INPUT DATA DECK	
	7	
(12)	8	
	9	
(11)	ØVLIB.	SCØPE Control Cards
(10)	R(TAPE9)	
(9)	RU(ABS)	
(8)	CBF(ABS,ØVLIB,1)	
(7)	R(ABS,ØVLIB)	
(6)	REQUEST ABS, HI,,DW·SN1799(CAMPUS)ØUT	
(5)	LGØ.	
(4)	RUN(S)	
(3)	R(TAPE1, TAPE9)	
(2)	CBR(INPUT, TAPE1,1)	
(1)	Job Card	

Figure 4

	6	
(28)	7	
	8	
	9	
(27)	FINISH	First level commands to control CAMPUS execution
(26)	SIMULATE	
(25)	PRØGCØST	
(24)	DATA	
(23)	REPØRT	
(22)	INPUT	
	7	
(21)	8	
	9	
(20)	PRØGRAM SAM (See Appendix 1 for listing)	FØRTRAN program to take data copied to TAPE1 and double the images and disk file TAPE9.
	7	
(19)	8	
	9	
(18)	LAST REPØRT REQUEST DECK	Copied to disk file named TAPE1 by control card (2).
(17)	LAST INPUT DATA DECK	
	7	
(16)	8	
	9	
(15)	D,ØUTPUT.	SCØPE File Processing Phase
(14)	MF501(ØUTPUT)	
(13)	R(ØUTPUT)	
(12)	ØVLIB.	CAMPUS Execution Phase
(11)	R(TAPE64, TAPE9)	SCØPE Initialization Phase
(10)	REQUEST TAPE64, HI,, EW.SNxxxx(CAMPUS)IN	
(9)	RU(ABS)	
(8)	CBF(ABS,ØVLIB, 1)	
(7)	R(ABS, ØVLIB)	
(6)	REQUEST ABS, HI,, DW·SN1799(CAMPUS)ØUT	
(5)	LGØ.	
(4)	RUN(S)	
(3)	R(TAPE1, TAPE9)	
(2)	CBR(INPUT,TAPE1, 1)	
(1)	Job Card	

SCØPE Control Cards

Appendix

Listing of PRØGRAM SAM

```
Col.
 7

    PRØGRAM SAM  (TAPE1,  TAPE9,)
    DIMENSIØN KARD (8)
100 READ (1, 10) (KARD (J), J = 1, 8)
 10 FØRMAT (8A10)
    IF (EØF, 1) 95, 50
 50 WRITE (9, 10)  KARD(J), J = 1, 8)
    WRITE (9, 10) KARD (J), J = 1, 8)
    GØ TØ 100
 95 STØP
    END
```

4.0 INPUT DATA SPECIFICATIONS

It is assumed that the user now has determined the cost center and program structures for his institution. The following instructions and forms will aid in collecting the data by defining the exact input which is required. In general, the user should code the forms in order of appearance. The formats specify the data structure for keypunching.

The input data cards all occur under the first level command INPUT. All input defined in this section will have second and third level commands. The second level commands define the category of data being input (i.e., DEFINE, ACTIVITY, PROGRAM, STUDENT, STAFF, XSTAFF, SPACE, AVLSPACE, EQUIPMEN, MISCELLA, REVENUE, SERVICE, INREPORT, OUTREPOR, and OTIME) and are filled in starting at card column 1 to column 8 with alphameric field. All level three commands (i.e., 01, 02, 03, 04, etc.) are filled in starting at card column 9-10 with numeric field. For every input card columns 1-10 are for a specific level 2 command name and its level 3 numeric command.

For all cost centers and programs always code the level. By leaving the specific cost center and program code blank, the information is applied to all cost centers and programs at that level.

All numeric fields are right justified and the alphameric fields (for example, names) are left justified. Detailed instructions will be shown in groups under the level two command. Descriptions of coding of the remainder of the card for each level command are titled per the following index.

Level 1 Command INPUT

Index of level 2 and Level 3 Command INPUT Documents

Para.	LEVEL 2	LEVEL 3	
4.1	DEFINE	01	Institution Name and Simulation Time Factors
		02	Cost Center Levels
		03	Cost Centers
		04	Program Levels
		05	Programs
		06	Program to Cost Center Affiliation
4.2	ACTIVITY	01	Activity Type
		02	Specialty Type
		03	Schedule Range
		04	Section Size Range
		05	Resource Combinations
		06	Activities
		07	Exception Activities
		08	Exception Resources
4.3	PROGRAM	01	Program Curricula
		02	Curricula Activities and Participation Rates
		03	Program Duration and Enrolment Update
		04	Credits Per Credit Range by Program
4.4	STUDENT	01	New Entrants to Institution with NO Academic Credit
		02	Distribution or New Entrants with NO Academic Credit
		03	New Entrants with Academic Standing
		04	Student Transitions
		05	Student Credit Load
4.5	STAFF	01	Academic Staff Ranks
		02	Academic Staff Activity Teaching Duties
		03	Academic Staff Activity Non-teaching Duties
		04	Academic Support Staff
		05	Non-academic Staff
4.6	XSTAFF	01	Detailed Academic Staff Ranks
		02	Detailed Academic Staff Activity Teaching Duties
		03	Detailed Academic Staff Activity Non-teaching Duties
		04	Detailed Academic Staff Inventory, Transition and Hiring Criteria
		05	Detailed Academic Staff Optimization and Update Policies

4.7	SPACE	01	Classroom Sizes (stations)
		02	Laboratory Sizes (stations)
		03	Classroom Space Planning Factors
		04	Classroom Type Characteristics
		05	Instructional Lab. Space Planning Factors
		06	Instructional Lab. Type Characteristics
		07	Special Lab. Space Planning Factors
		08	Special Lab. Type Characteristics
		09	Service Space Characteristics by Type
		10	Cost Center Space Characteristics
		11	Service Code Specifications
		12	Space Category Codes, Names, Construction, and Maintenance Costs
		13	Miscellaneous Space Specifications
		14	Teaching Space Control Centers
4.8	AVLSPACE	01	Available Classroom Space
		02	Available Instructional Laboratory Space
		03	Available Instructional Special Laboratory Space
		04	Available Space by Category
4.9	SERVICE	01	Service Departments and Affiliations
		02	Service Staff
		03	Service Space
		04	Service Equipment
4.10	EQUIPMEN	01	Equipment Resource Characteristics
4.11	REVENUE	01	Characteristics of Revenue
		02	Revenue at Cost Centers
		03	Revenue at Programs
		04	Revenue of Service Departments
4.12	MISCELLA	01	Miscellaneous Resource Characteristics
		02	Miscellaneous Resource by Cost Center

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
D	E	F	I	N	E			0	1

Sys. Id.

77	78	79	80

INSTITUTION CHARACTERISTICS

Institution Name (11–42)	First Calendar Year (43–44)	Number of Sim. Periods per Session (45–46)	Length of Sim. Periods in Weeks (47–48)

Explanation: (a) The calendar year of the first session being simulated should be indicated by the last two digits.

20

Institution Characteristics

Coding Instructions

Information	Card Columns
Full name of institution.	11-42
Last two digits of the calendar year of the first session to be simulated.	43-44
Number of simulation periods per session (e.g., 2 if semester system).	45-46
Length of simulation period in weeks.	47-48

Explanation

Basic characteristics for the simulation being run include the name of the institution, first calendar year being simulated, number of simulation periods per session and length in weeks of simulation period.

Session = one academic year. Up to 10 sessions may be simulated.
Simulation period = time period within the academic year. The simulation period may be equivalent to the academic year. The year may be divided into two periods (semesters) three (trimester) or four (quarterly system). The current model can handle a maximum of 3 simulation periods.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
D	E	F	I	N	E			0	2

Sys. Id.

77	78	79	80

COST CENTER LEVELS

22

Level Number (11)	Level Name (12–27)	Level Number (28)	Level Name (29–44)	Level Number (45)	Level Name (46–61)

Cost Center Levels

Coding Instructions

Information	Card Columns
Level number (maximum of 5 levels with level in hierarchy as level 1).	11
Level name (e.g., department, division, faculty school, campus, college, university, institution).	12-27

Repeats: There are 3 sets of the information per card. The 2nd set starts at column 28, the 3rd at column 55.

Explanation

The college organization is specified in terms of cost-center structure, levels are left open-ended so that changes may be made easily. A cost-center structure at a small college might be a two-level structure, with level 1 (the lower level) being divisions and level 2 (the upper level) being the college. For larger colleges it might become necessary to break up the divisions further into departments. In this case, another level could be added and the level renumbered. (See Exhibit 1.)

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
D	E	F	I	N	E			0	3

Sys. Id.

77	78	79	80

COST CENTERS

Cost. Ctr. Level Number (11)	Cost Ctr. Code (12–14)	Cost Center Name (15–30)	Cost Ctr. Code of Affil. (31–33)	Cost Ctr. Level Number (34)	Cost Ctr. Code (35–37)	Cost Center Name (38–53)	Cost Ctr. Code of Affil. (54–56)

24

Explanation:

(a) Code across the page, two cost centers per line.
(b) If there is no cost center of affiliation, leave blank.
(c) Use additional coding sheets of this type, as needed, to code all cost centers.

Cost Centers

Coding Instructions

Information	Card Columns
Cost-center level (from DEFINE 02).	11
Cost-center node (maximum of 25 nodes).	12-14
Cost-center name.	15-30
Cost-center node of affiliation.	31-33

Repeats: There are 2 sets of the information per card. The 2nd set starts at column 34.

Explanation

This information defines the cost-center nodes of the cost-center structure. A cost-center level sometimes could be the aggregation of many cost-center nodes or could be a cost-center node itself.

Cost-center node of affiliation is the cost-center node (organizational unit) immediately above in a hierarchical structure. The cost-center ("college") highest in the hierarchy can have no cost-center node of affiliation and in this case a blank must be left where the cost-center node of affiliation is usually supplied.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card___ Cards/Sheet___	Sheet___of___

Command Levels

1	2	3	4	5	6	7	8	9	10
D	E	F	I	N	E			0	4

Sys. Id.

77	78	79	80

PROGRAM LEVELS

Level Number	Level Name
11	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28	29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
45	46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61
11	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

Program Levels

Coding Instructions

Information	Card Columns
Level number (maximum of 4 levels with lowest level in hierarchy as level 1).	11
Level name.	12-27

Repeats: There are 3 sets of the information per card. The 2nd set starts in column 28, the third in column 55.

Explanation

The model handles academic-program structuring in much the same way as cost-center structuring. The lowest level is the operating program. Higher levels specify aggregations of the operating programs. For example, for a Junior College a distinction might be made between transfer and terminal programs. This distinction would require the specification of a program level. For a University a distinction might be made between graduate and undergraduate programs. Again, this distinction would require the specification of a program level. (See Exhibit 2.)

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
D	E	F	I	N	E			0	5

P R O G R A M S

Sys. Id.

77	78	79	80

Prog. Level Number	Prog. Code	Program Name	Prog. Code of Affil.	Prog. Level Number	Prog. Code	Program Name	Prog. Code of Affil.
11	12 13 14	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 32 33	34	35 36 37	38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	54 55 56

Explanation:

(a) Code across the page, two programs per line.
(b) If there is no program of affiliation, leave blank.
(c) Use additional coding sheets of this type, as needed, to code all programs.

Program Nodes

Coding Instructions

Information	Card Columns
Program level (maximum of 4 levels).	11
Program node (maximum of 80).	12-14
Program name.	15-30
Program node of affiliation.	31-33

Repeats: There are 2 sets of information per card. The 2nd set starts at column 34.

Explanation

See 4.1.4 and Exhibit 2.

The program node of affiliation is the program node immediately above in the hierarchical structure. The program node ("instruction") highest in the hierarchy can have no program node of affiliation and in this case a blank must be left where the program node of affiliation is usually supplied.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 8	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
D	E	F	I	N	E			0	6

Sys. Id.

77	78	79	80

PROGRAM TO COST CENTER AFFILIATION

Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code	Prog. Code	Cost Ctr Code
11 12 13	14 15 16	17 18 19	20 21 22	23 24 25	26 27 28	29 30 31	32 33 34	35 36 37	38 39 40	41 42 43	44 45 46	47 48 49	50 51 52	53 54 55	56 57 58	59 60 61	62 63 64	65 66 67	68 69 70

Explanation:

(a) Code across the page, ten program/cost center affiliations per line.
(b) Only one Cost Center per program.

Program to Cost Center Affiliations

Coding Instructions

Information	Card Columns
Program node.	11-13
Cost center node.	14-16

Repeats: There are 10 sets of information per card. The 2nd set starts at column 17, the 3rd at column 33, and so on.

Explanation

Program nodes are affiliated to the cost center which has management control of the program. Programs affiliate in most cases to a cost center at the lowest level of the cost center structure. However, from a modelling standpoint they can affiliate with cost centers at any level.

CAMPUS-MINNESOTA Coding Sheets

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	1

Sys. Id.

77	78	79	80

ACTIVITY TYPE

Activity Type Code	Activity Type Name	Activity Type Code	Activity Type Name	Activity Type Code	Activity Type Name	Activity Type Code	Activity Type Name	Activity Type Code	Activity Type Name
11 12	13 14 15 16 17 18 19 20	21 22	23 24 25 26 27 28 29 30	31 32	33 34 35 36 37 38 39 40	41 42	43 44 45 46 47 48 49 50	51 52	53 54 55 56 57 58 59 60

Activity Types

Coding Instructions

Information	Card Columns
Activity type code (maximum of 5 types).	11-12
Activity type name (e.g., lecture, laboratory, seminar, field trip).	13-20

Repeats: There are 6 sets of information per card. The 2nd set starts in column 21, the third in 41, and so on.

Explanation

This information specifies the activity types (e.g., lecture, laboratory, seminar, field trip, etc.). Hereafter, each of these types is referred to by its code. The activity types allow for variation in the required staffing-units per contact hour (see STAFF 02).

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	2

Sys. Id.

77	78	79	80

SPECIALTY TYPE

Specialty Type Code	Specialty Type Name	Specialty Type Code	Specialty Type Name	Specialty Type Code	Specialty Type Name	Specialty Type Code	Specialty Type Name	Specialty Type Code	Specialty Type Name	Specialty Type Code	Specialty Type Name
11 12	13 14 15 16 17 18 19 20	21 22	23 24 25 26 27 28 29 30	31 32	33 34 35 36 37 38 39 40	41 42	43 44 45 46 47 48 49 50	51 52	53 54 55 56 57 58 59 60	61 62	63 64 65 66 67 68 69 70
11 12	13 14 15 16 17 18 19 20	21 22	23 24 25 26 27 28 29 30	31 32	33 34 35 36 37 38 39 40	41 42	43 44 45 46 47 48 49 50	51 52	53 54 55 56 57 58 59 60	61 62	63 64 65 66 67 68 69 70

Explanation:

(a) Code across the page, six specialty types per line.

Specialty Types

Coding Instructions

Information	Card Columns
Specialty type code (maximum of 40).	11-12
Specialty type name (e.g. general, engineering, english, mathematics, etc.).	13-20

Repeats: There are 3 sets of information per card. The 2nd set starts in column 21, the third in column 41.

Explanation

Specialty type is used here specifically as it refers to the type of training or expertise required to teach the given activity. Like activity types, specialty types are named and given a code number. Depending on the size of the college, the list of specialty types will be less or more highly detailed. Particularly in a small college, where the total number of teaching staff is small, the specialty types should be quite general, just as the staff hired must be quite flexible in what they can teach. A highly specific list of specialties in this situation would lead to problems of small numbers and staffing requirements of fractions of people. (See Exhibit 3.)

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 4 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	3

Sys. Id.

77	78	79	80

SCHEDULE RANGE

Schedule Range Code	Day or Night Code	Hrs. per Mtg.	Mtgs. per Wk.	Duration in Wks.	Schedule Range Code	Day or Night Code	Hrs. per Mtg.	Mtgs. per Wk.	Duration in Wks.
11 12	13	14	15	16 17	18 19	20	21	22	23 24
25 26	27	28	29	30 31	32 33	34	35	36	37 38
39 40	41	42	43	44 45	46 47	48	49	50	51 52
53 54	55	56	57	58 59	60 61	62	63	64	65 66

36

Explanation:
(a) Code across the page, two schedule ranges per line.
(b) Day - 0; Night - 1
(c) Use additional coding sheets of this type, as needed, to code all schedule ranges.

Schedule Ranges

Coding Instructions

Information	Card Columns
Schedule range code in sequence (maximum of 15).	11-12
Day or night. 0 or blank = day 1 = night.	13
Hours per meeting (maximum of 9).	14
Meetings per week (maximum of 9).	15
Duration in weeks (maximum of 99).	16-17

Repeats: There are 8 sets of information per card. The 2nd set starts at column 18, the 3rd at column 35, and so on.

Explanation

Each schedule range is composed of four pieces of information (See Exhibit 3).

1) Whether the activity meets during the day or evening. This distinction is particularly salient where evening activities are part of a special extension program and not to be calculated in terms of resources required in the regular teaching week.

2) Hours per meeting: Hours will in most cases equal periods whether they are 50 minutes, 60 minutes, etc. However, it may be necessary to work in 1/2 hour units. If so, consistency must be maintained throughout the model.

3) Meetings per week: The model is concerned with only hours per week, making specious such distinctions as 3 hours per meeting with 1 meeting per week and 1 hour per meeting with 3 meetings per week. However, when actual scheduling of classes is incorporated into the model, it may be relevant to know what classes must be held 'back-to-back'. It is for this purpose that this feature has been built into the input structure.

Explanation

4) Duration in weeks: In most cases activities will continue for the duration of the simulation period although this is not necessary.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 3 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	1

Sys. Id.

77	78	79	80

SECTION SIZE RANGE

Section Size Code	Minimum	Desired	Maximum	Section Size Code	Minimum	Desired	Maximum
11 12	13 14 15	16 17 18	19 20 21	22 23	24 25 26	27 28 29	30 31 32
33 34	35 36 37	38 39 40	41 42 43	44 45	46 47 48	49 50 51	52 53 54
55 56	57 58 59	60 61 62	63 64 65				

Explanation:

(a) Code across the page, two section size ranges per line.
(b) Use additional coding sheets of this type, as needed, to code all section size ranges.

Section Size Ranges

Coding Instructions

Information	Card Columns
Section-size code (maximum of 10 codes).	11-12
Minimum size of section.	13-15
Desired size of section.	16-18
Maximum size of section (not more than 999).	19-21

Repeats: There are 5 sets of information per card. The 2nd set starts at column 22, the 3rd at column 43, and so on.

Explanation

Section-size ranges are composed of three pieces of information (see Exhibit 3):

(1) The minimum number of students in a section to make the creation of a section feasible;
(2) The desired number of students in a section; and
(3) The maximum number of students in a section.

On the basis of these factors the model takes the total number of students enrolled in an activity and divides that total into the number of sections necessary to meet the constraints.

The decision rules in the present model are such that if a course has one or more students, at least one section will be offered regardless of the minimum section size. In cases of conflict where a maximum is exceeded but sectioning causes sections below the minimum, the section size nearest the desired will be used.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 3 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	5

Sys. Id.

77	78	79	80

RESOURCE COMBINATIONS

Resource Combination Code	Resource Type	One Subtype	Resource Type	Two Subtype	Resource Type	Three Subtype	Resource Combination Code	Resource Type	One Subtype	Resource Type	Two Subtype	Resource Type	Three Subtype
11 12	13	14 15	16	17 18	19	20 21	22 23	24	25 26	27	28 29	30	31 32
33 34	35	36 37	38	39 40	41	42 43	44 45	46	47 48	49	50 51	52	53 54
55 56	57	58 59	60	61 62	63	64 65							

Explanation:

(a) Code across the page, two resource combinations per line.
(b) Use additional coding sheets of this type, as needed, to code all resource combinations.

Resource Combinations

Coding Instruction

Information	Card Columns
Resource combination code (maximum of 50 codes).	11-12
First type code, sub-type code.	13, 14-15
Second type code, sub-type code.	16, 17-18
Third type code, sub-type code.	19, 20-21

All resources are assumed proportional to the number of sections of the activity. All resources and activities are assumed to have the same cost-center node of affiliation. Resources which do not satisfy these assumptions are handled by exception activities (see ACTIVITY 08).

Repeats: There are 5 sets of information per card. The 2nd set starts at column 22, the 3rd at column 43, and so on.

Explanation

As with schedule ranges and section-size ranges, it has been found that many activities require exactly the same configuration of resources. If these configurations or combinations are defined, each one can be referenced by a single code.

Activities generally do not require resources in excess of three different types. This has been taken as the maximum number of resources in a resource combination, although exceptions to this can be handled by creating a second activity which requires the additional resources.

Each resource is defined by a type and sub-type. The resource types are implicit in the model as are some of the sub-types. Additional resource types could feasibly be programmed into the model. In most cases, sub-types are specified by the user as input data at level 2 command STAFF, SPACE and EQUIPMENT. As pre-defined in the model, resources are:

Type Code	Type Name	Sub-type Code	Sub-type Name
1	Academic staff	1	Part-time (i.e. temporary)
		2	Full-time (i.e. permanent)
		3	General (i.e. either 1 or 2 according to availability)
2	Academic Support Staff	Sub-type defined in STAFF 04. (Examples: - teaching assistant - laboratory demonstrater)	
3	Spare	Not used in current model.	
4	Classroom Space	Sub-type defined in SPACE 04. (Examples: - table arm - table and chair)	
5	Instructional Laboratory Space	Sub-type defined in SPACE 06. (Examples: - dry laboratory - wet laboratory)	
6	Special Laboratory Space	Sub-type defined in SPACE 08. (Examples: - electronics laboratory - drafting laboratory - language laboratory)	
7	Equipment	Sub-type defined in EQUIPMEN 01 (Examples: - CAI Projector)	

Taken alone or in various combinations, these resource types make up the resource combinations (see Exhibit 4).

The cost center of affiliation and the schedule ranges of resources are assumed to be the same as the activity to which they are attached unless otherwise specified. Likewise, quantity is assumed to be 1 per section unless otherwise specified.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 2 Cards/Sheet 4 Activity name is not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	U	G

Sys. Id. 77 78 79 80

ACTIVITIES

Activity Name	Activity Number Code (11–14, 39–42)	Activity Calendar Code (15–18, 43–46)	Cost Ctr. Code of Affil. (19–21, 47–49)	Activity Type Code (22–23, 50–51)	Specialty Type Code (24–25, 52–53)	Success Factor (26–28, 54–56)	Activity Credits (29–30, 57–58)	Schedule Range Code (31–32, 59–60)	Section Size Range Code (33–34, 61–62)	Resource Comb. Code (35–36, 63–64)	No. of Activities (37–38, 65–66)
	11 12 13 14	15 16 17 18	19 20 21	22 23	24 25	26 27 28	29 30	31 32	33 34	35 36	37 38
	39 40 41 42	43 44 45 46	47 48 49	50 51	52 53	54 55 56	57 58	59 60	61 62	63 64	65 66
	11 12 13 14	15 16 17 18	19 20 21	22 23	24 25	26 27 28	29 30	31 32	33 34	35 36	37 38
	39 40 41 42	43 44 45 46	47 48 49	50 51	52 53	54 55 56	57 58	59 60	61 62	63 64	65 66
	11 12 13 14	15 16 17 18	19 20 21	22 23	24 25	26 27 28	29 30	31 32	33 34	35 36	37 38
	39 40 41 42	43 44 45 46	47 48 49	50 51	52 53	54 55 56	57 58	59 60	61 62	63 64	65 66
	11 12 13 14	15 16 17 18	19 20 21	22 23	24 25	26 27 28	29 30	31 32	33 34	35 36	37 38
	39 40 41 42	43 44 45 46	47 48 49	50 51	52 53	54 55 56	57 58	59 60	61 62	63 64	65 66

Explanation:

(a) Code across the page, one activity per line.
(b) Exception activities, as defined in the coding manual, are not coded on this sheet.
(c) The full activity name should be written in for the coder's reference.
(d) If success factor and activity credits do not apply, leave blank.
(e) If activity type groups are not used, put a one in number of activities.
(f) Use additional coding sheets of this type, as needed, to code all activities.

Activities

Coding Instruction

Information	Card Columns
Activity number (maximum 1000).	11-14
Activity calendar code (4 letter code alphameric).	15-18
Cost center node of affiliation (not program node of affiliation).	19-21
Activity type from ACTIVITY 01.	22-23
Specialty type from ACTIVITY 02.	24-25
Success factor (pass rate as whole number percentage).	26-28
Activity credit (number of units credited to activity).	29-30
Schedule range from ACTIVITY 03.	31-32
Section size range from ACTIVITY 04.	33-34
Resource combination from ACTIVITY 05.	35-36
Number of activities (Use 01 and be safe).	37-38

Repeats: There are 2 sets of information per card, the 2nd set starts in columns 39 and continues on.

Explanation

Activities are the basic building block of the CAMPUS model. Defined in its most basic terms an activity is a configuration of physical resources used on a specified schedule for teaching a group of specified size. Usually an activity is the equivalent of what is most commonly termed a course. For example, Mathematics 101 is an activity that meets for three hours a week in a classroom with one professor and a maximum student enrollment of thirty. The

exception to the activity/course analogy is a course, like Physics 101, which consists of two hours of lectures and two hours of laboratory work. In this case, because different physical resources are required by each, the lecture and laboratory portions of the course are defined as two different activities. Similarly, a course consisting of lecture and partly seminar, laboratory, or recitation would be split into two activities because:

1) The maximum class size or section size for the seminar or lab portion will likely be smaller than for the lecture.

2) Although both require classrooms, the seminar portion, on the basis of the class size specified, will be matched in the model with a classroom of a size most nearly equating with the class size.

3) Frequently a professor will be in charge of the lecture and a teaching assistant in charge of a laboratory or recitation.

The course that combines class work with field work must be handled as two activities. The field work might require some staff and/or equipment but consumes no college space unlike the class work portion of the course.

Independent study is also an activity that requires resources of faculty time for advising and possibly some space and/or equipment.

If the college being simulated is on a credit system, two additional pieces of information must be attached to each activity, the first being the credit value of the activity (e.g., 3 credit course). Where a course is divided into two activities as already described, the credits will be split between the two activities. The second factor is a success factor or pass rate, since student transitions are attached directly to activities rather than an entire academic year.

Number of activities indicates situations where several activities have been combined into one representative activity, based on the fact that all the represented activities share the same characteristics of schedule section size and physical resources. This capability has been built in to handle situations where the students have the option of selecting among several activities. In many cases, data will not be available on the distribution of students between options. That being the case the best assumption to make is that they will distribute themselves evenly between them. Thus, rather than assigning a small percentage of students to each of several activities one large percentage can be assigned to the representative activity. The model handles representative activities by dividing their total enrollment by the number of activities for which they stand and then dividing that number by the desired section size to determine the number of sections in each real activity. [Project PRIME has always used <u>one</u> for the number of activities.]

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Activity names are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	7

EXCEPTION ACTIVITIES

Sys. Id.

77	78	79	80

Activity Name	Activity Number Code (11-14)	Activity Calendar Code (15-18)	Cost Ctr. Node of Affil. (19-21)	Activity Type Code (22-23)	Specialty Type Code (24-25)	Success Factor (26-27-28)	Activity Credits (29-30)	Activity Schedule: Day or Night (31)	Activity Schedule: Hrs./Mtg. (32)	Activity Schedule: Mtgs./Wk. (33)	Activity Schedule: Dur'n in Wks (34-35)	Activity Section Size: Minimum (36-37-38)	Activity Section Size: Desired (39-40-41)	Activity Section Size: Maximum (42-43-44)

Explanation:

(a) Code across the page, one exception activity per line.
(b) The full activity name should be written in for the coder's reference.
(c) Day -0; Night - 1.
(d) Use additional coding sheets of this type, as needed, to code all exception activities.

Exception Activities

Coding Instruction

Information		Card Columns
Activity exception number code (exception codes must be different from regular activities) (maximum 20).		11-14
Activity calendar code (4 letter alphameric).		15-18
Activity type from ACTIVITY 01		22-23
Specialty type from ACTIVITY 02.		24-25
Success factor, whole number.		26-28
Activity credits.		29-30
Day or night 0 - day, 1 - night	Similar to regular activity schedule range	31
Hours per meeting.		32
Meetings per week		33
Duration in weeks		34-35
Minimum section size	Similar to regular activity section size range	36-38
Desired section size.		39-41
Maximum section size.		42-44

Explanation

Activities become exception activities for the following reasons:

1) The functional basis* of the resources required by activity to the activity is something other than one per section, e.g.,

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*Functional basis and quantity in proportion are defined and discussed in Exhibit 5.

one piece of equipment per student.

2) The quantity* of a resource is greater or less than one, e.g., two teachers per section.

3) The cost center of affiliation of some or all of the resources is other than the cost center of affiliation of the activity consuming those resources, e.g.
   The Engineering Department offers an English activity for which it draws a staff member from the English Department.

4) The resource schedule differs from the activity schedule, e.g., an activity which meets for five periods a week requires certain equipment for only two of those periods.

5) The activity has a unique schedule range.

6) The activity has a unique section size range.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 3 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	C	T	I	V	I	T	Y	0	8

Sys. Id.

77	78	79	80

EXCEPTION ACTIVITY RESOURCES

Activity Number Code	Resource Type	Resource Subtype	Cost Ctr. Code of Affil.	Proportional Basis	Quantity	Resource Schedule: Day or Night Code	Hrs. per Mtg.	Mtgs. per Wk.	Duration in Wks.
11 12 13 14	15	16 17	18 19 20	21	22 23 24 25 26	27	28	29	30 31
	32	33 34	35 36 37	38	39 40 41 42 43	44	45	46	47 48
	49	50 51	52 53 54	55	56 57 58 59 60	61	62	63	64 65
11 12 13 14	15	16 17	18 19 20	21	22 23 24 25 26	27	28	29	30 31
	32	33 34	35 36 37	38	39 40 41 42 43	44	45	46	47 48
	49	50 51	52 53 54	55	56 57 58 59 60	61	62	63	64 65

Explanation

(a) Code across the page, one resource per line, with a maximum of three resources per activity.
(b) If the number of resources for an activity exceeds three, a new activity must be defined, which generates the need for those excess resources.
(c) The first resource for each activity must be coded on a line that provides for the Activity Number code (beginning with column 11). If the number of resources for an activity is one or two, leave respectively, two or one line blank.
(d) Quantity must be expressed to two decimal places.
(e) Day - 0; Night - 1.
(f) Use additional coding sheets of this type, as needed, to code all exception activity resources.

Exception Resources

Coding Instruction

Information	Card Columns
Exception activity code (maximum of 20 codes); only one code per card.	11-14
(Note that the following data are 3 sets per card.)	
First resource type, sub-type.	15, 16-17
Cost-center node of affiliation.	18-20
Resource proportional basis (1, 2 or 3).	21
Resource quantity (2 decimal place value).	22-26
Resource Schedule Day (0) or Night (1)	27
Resource Schedule Hours/meeting.	28
Resource Schedule Meetings/week.	29
Resource Schedule Duration in weeks.	30-31

Repeats: The 2nd set of data starts at columns 32, 33, and 34 (2nd resource type and sub-type), the 3rd set at columns 49, 50, and 51. Note that each resource can be separately affiliated with any cost center and each resource can be scheduled differently.

Explanation

Both ACTIVITY 08 and 09 are required to specify an exception activity (refer to explanation in section 4.2.7).

There are three available resource proportional bases.

1. The digit 1 implies that the average weekly resource hours required is computed as follows:

$$\text{Weekly Resource hrs.} = \frac{\text{(Contact hrs.)} * \text{(Quantity)}}{\text{Length of Simulation Period}}$$

where: Contact hrs. = total hours when resource is used during a simulation period.

Quantity = number of units of the resource required for one contact hours of activity.

Length of Simulation Period is in weeks.

2. The digit 2 implies that the average weekly resource hours required is computed as follows:

$$\text{Weekly Resource hrs.} = \frac{\text{(Contact hrs.)} * \text{(Quantity)} * \text{(Enrollment)}}{\text{Length of Simulation Period}}$$

where: Contact hrs. and Length of Simulation Period are defined above.

Quantity = number of units of resource required per enrollee contact hour.

Enrollment = total number of students enrolled in the activity.

3. The digit 3 implies that the average weekly resource hour required is computed as follows:

$$\text{Weekly Resource hrs.} = \frac{\text{(Contact hrs.)} * \text{(Quantity)} * \text{No. of Sections)}}{\text{Length of Simulation Period}}$$

where: Contact hrs. and Length of Simulation Period are defined in 1.

Quantity = number of units of the resource required per section hour.

No. of Sections= the number of sections into which the total enrollment has been divided.

When filling in the information on the resource schedule (columns 27-31), the user should refer back to the explanation for ACTIVITY 03.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 2 Cards/Sheet 4	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
P	R	O	G	R	A	M		0	1

Sys. Id.

77	78	79	80

PROGRAM CURRICULA

Program Code	Cr.Rg./ Ac.Yr.	Sim. Prd.	Curriculum Number	Cr.Rg./ Ac.Yr.	Sim. Prd.	Curriculum Number	Cr.Rg./ Ac.Yr.	Sim. Prd.	Curriculum Number	Cr.Rg./ Ac.Yr.	Sim. Prd.	Curriculum Number
11 12 13	14 15	16	17 18 19 20	21 22	23	24 25 26 27	28 29	30	31 32 33 34	35 36	37	38 39 40 41
	42 43	44	45 46 47 48	49 50	51	52 53 54 55	56 57	58	59 60 61 62	63 64	65	66 67 68 69
11 12 13	14 15	16	17 18 19 20	21 22	23	24 25 26 27	28 29	30	31 32 33 34	35 36	37	38 39 40 41
	42 43	44	45 46 47 48	49 50	51	52 53 54 55	56 57	58	59 60 61 62	63 64	65	66 67 68 69
11 12 13	14 15	16	17 18 19 20	21 22	23	24 25 26 27	28 29	30	31 32 33 34	35 36	37	38 39 40 41
	42 43	44	45 46 47 48	49 50	51	52 53 54 55	56 57	58	59 60 61 62	63 64	65	66 67 68 69
11 12 13	14 15	16	17 18 19 20	21 22	23	24 25 26 27	28 29	30	31 32 33 34	35 36	37	38 39 40 41
	42 43	44	45 46 47 48	49 50	51	52 53 54 55	56 57	58	59 60 61 62	63 64	65	66 67 68 69

Explanation:

(a) Code across the page, four curriculum numbers per line.
(b) Where more than two lines are necessary to code curriculum numbers for a program, repeat the program code number at the beginning of the third line used.
(c) Begin each program on a new line that provides for the program code (beginning in column 11) i.e. if curriculum numbers for a program can be coded in one line or three lines, leave the following line blank.
(d) Use additional coding sheets of this type, as needed, to code curriculum numbers for all programs.

Curricula and Programs

Coding Instruction

Information	Card Columns
Program node (maximum of 80 nodes); only one node per card. (Note that the following data are 3 sets per card)	11-13
Credit range (maximum of 6 ranges).	14-15
Simulation period (maximum of 3 periods). 2 - for semester 3 - for trimester	16
Curriculum code (a sequential number code).	17-20

Repeats: The 2nd set of data starts at columns 21-22 (2nd credit range/academic year) and the 3rd set at columns 28-29.

Explanation

Each curriculum defines a particular program, credit range and simulation period (PROGRAM 02 sets up each curriculum). It is an aggregation of activities which are in turn aggregations of resources.

Credit ranges refer to levels of academic standing. Where a credit system is operative, the student passes through the various credit ranges as he accumulates credits. For example, having accumulated 40 credits, he might now have achieved 2nd semester sophomore standing. Frequently the student will advance from credit range to credit range at the same rate as the academic year advances by simulation periods. However, this need not necessarily be so and credit ranges should not be confused with simulation periods or sessions. A freshman who enters the college in the fall semester (simulation period 1), but who fails several activities or who takes fewer than the typical number of credits may accumulate too few credits to advance into the next credit range at the typical time and will remain in credit range 1 for as long as it takes him to earn the necessary number of credits to advance into credit range 2.

While curricula for a program will vary in most cases between credit ranges, they will frequently remain constant between simulation periods. Specifically, the curriculum may be the same for one credit range of a program regardless of whether it is going in the fall, spring or summer. It is also conceivable that the same curriculum will apply to more than one credit range in a program. For example, the college might specify that students must take certain activities to attain upper class standing, but they may take these activities in any order and at any time. If the same percentage of students takes each of these activities during each of several credit ranges, the same curriculum will be in effect

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet _____	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
P	R	O	G	R	A	M		0	2

Sys. ID.

77	78	79	80

Curriculums, Activities and Participation Rates

Curriculum Number	Activity No.Code	Part'n Rate	Acty. No.Code	Part'n Rate	Acty. No.Code	Part'n Rate	Acty. No.Code	Part'n Rate	Acty. No.Code	Part'n Rate	Part'n Rate	Acty. No.Code	Part'n Rate	Acty. No.Code
11 12 13 14	15 16 17 18	19 20 21	22 23 24 25	26 27 28	29 30 31 32	33 34 35	36 37 38 39	40 41 42	43 44 45 46	47 48 49	54 55 56	57 58 59 60	61 62 63	64 65 66

Explanation:

(a) Code across the page, eight activities per line.
(b) Where more than one line is necessary to enumerate the activities constituting a curriculum, repeat the curriculum number at the beginning of each line used.
(c) Each curriculum must begin on a new line.
(d) Participation rate must be expressed as a percentage with no decimal place.
(e) Use additional coding sheets of this type, as needed, to code all curricula.

Curricula, Activities, and Participation Rates

Coding Instruction

Information	Card Columns
Curriculum code (maximum of 200 codes); only one curriculum code per card.	11-14
(Note that the following data are 8 sets per card)	
Activity code (maximum of 1000 codes).	15-18
Participation rate (no decimal place percentage).	19-21
Repeats: The 2nd set of data starts at columns 22-25 2nd activity code, and so on. Up to 4 cards may be used to describe a curriculum (32 activities). A maximum of 450 PROGRAM 02 cards is allowed.	

Explanation

Student participation rates are required for each activity in a curriculum. The participation rate for an activity is the percentage of students in one simulation period and one credit range of a program taking that activity. For example, if all students in the English program are required to take English 101 during the first semester, the participation rate will be 100%. Where several options exist, the participation rate in each will be something less than 100%. If, on the other hand, an activity is compulsory for freshman in a college where there are two credit ranges of freshmen, the participation rate for that activity may be 50% in each credit range. Where participation is split evenly between credit ranges for all activities in a curriculum, the same curriculum will apply to both. Thus, curricula are the same where:

(1) They consist of the same activities; and
(2) the participation rate attached to each of those activities is the same.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
P	R	OG	R	A	M			0	3

Sys. Id.

77	78	79	80

PROGRAM ENROLMENT UPDATE BY SIMULATION PERIOD

Prog. Code	Prog. Dur'n	Enrolment Update 1	2	3	4	Prog. Code	Prog. Dur'n	Enrolment Update 1	2	3	4	Prog. Code	Prog. Dur'n	Enrolment Update 1	2	3	4	Prog. Code	Prog. Dur'n	Enrolment Update 1	2	3	4	Prog. Code	Prog. Dur'n	Enrolment Update 1	2	3	4	Prog. Code	Prog. Dur'n	Enrolment Update 1	2	3	4
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

Prog Code	Prog. Dur'n	Enrolment Update 1	2	3	4
56	57	58	59	60	61	62	63	64

Explanation:

(a) Code across the page, six programs per line.
(b) Prog. Dur'n refers to the duration of a program in number of academic years or credit ranges.
(c) Enrolment update is processed prior to simulation period 1,2,3 and/or 4 as indicated by: Yes -1; No - 0.
(d) Use additional coding sheets of this type, as needed, to code update information for all programs.

Program Enrollment Update

Coding Instruction

Information	Card Columns
Program code (maximum of 80 codes).	11-13
Program duration (that is, maximum number of credit ranges in program).	14-15
Enrollment update prior to simulation period 1	16
Enrollment update prior to simulation period 2	17
Enrollment update prior to simulation period 3	18
Enrollment update prior to simulation period 4 (1 = yes; 0 = No)	19 (Unused)

Repeats: There are 8 sets of the information per card. The 2nd set starts in columns 20-22 (program code), the 3rd set in columns 29-31, and so on.

Explanation

This command level specifies the duration of each program in credit ranges. The model uses the duration, together with the credits per credit range (as specified in PROGRAM 04), to carry the students through the system. When a student has completed the final credit range, he is graduated out of the program. The assumption here is that the total number of credits required to graduate is distributed evenly among credit ranges.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
P	R	O	G	R	A	M		0	4

Sys. Id.

77	78	79	80

CREDITS PER CREDIT RANGE BY PROGRAM

Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.	Prog. Code	Credits/ Cr. Rg.
11 12 13	14 15	16 17 18	19 20	21 22 23	24 25	26 27 28	29 30	31 32 33	34 35	36 37 38	39 40	41 42 43	44 45	46 47 48	49 50

(a) Code across the page eight programs per line.
(b) If one "credits per credit range" figure applies across the institution, code that figure in columns 14 and 15, leaving the program code blank. This figure can be overridden for exceptions, by coding these exceptions with their program codes in the columns that follow.

Credits per Credit Range by Program

Coding Instruction	Card Columns
Program code (if blank, credits apply to all programs).	11-13
Credits per credit range.	14-15

Repeats: There are 8 sets of information per card. The 2nd set of program code starts in columns 16-18, the 3rd set in columns 21-23, and so on.

Explanation

Refer to the Explanation in section 4.3.3.

CAMPUS-MINNESOTA Coding Sheets

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	U	D	E	N	T		0	1

Sys. Id.

77	78	79	80

NEW ENTRANTS TO THE INSTITUTION WITH NO ACADEMIC CREDIT*

Simulation Period One	Simulation Period Two	Simulation Period Three
11 12 13 14 15	16 17 18 19 20	21 22 23 24 25

Explanation:
(a) Code across the page, only for applicable simulation periods.

* The term, Freshmen will be used hereafter synonymously with New Entrants to the Institution with no Academic Credit.

New Entrants to the Institution with no Academic Credit

Coding Instruction

Information	Card Columns
New entrants (number of freshmen students by simulation periods).	11-15

Repeats: 3 sets of this information per card. The 2nd set is in columns 16-20, the 3rd set in columns 21-25.

Explanation

This command level specifies the number of new entrants with no academic credit by simulation periods per session.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	U	DE	N	T			0	2

Sys. Id.

77	78	79	80

DISTRIBUTION OF FRESHMEN BY PROGRAM

Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen	Prog. Code	% of Freshmen
11 12 13	14 15 16 17	18 19 20	21 22 23 24	25 26 27	28 29 30 31	32 33 34	35 36 37 38	39 40 41	42 43 44 45	46 47 48	49 50 51 52	53 54 55	56 57 58 59	60 61 62	63 64 65 66	67 68 69	70 71 72

Explanation:

(a) Code across the page, nine programs per line.
(b) Percentage of total freshmen entrants in each program must be expressed to one decimal place.

Distribution of New Entrants with No Advanced Standing in Program

Coding Instruction

Information	Card Columns
Simulation period.	11
Program node.	12-14
Percentage distribution of new entrants with no academic credit who enter this program (percentage to 1 decimal place, e.g., 52.5% is expressed 0525).	15-18

Repeats: There are 8 sets of information per card. The 2nd set starts in column 19 (simulation period), the 3rd set in column 27, and so on.

Explanation

This command level specifies the distribution of new entrants with no academic credit into programs as a percent of the total number of new entrants. Since student enrollment and distribution are, no doubt, the single most important areas for experimentation with the CAMPUS model, percentages, rather than real numbers, are used here to maintain maximum flexibility. In this way experiments can take several forms:

(1) total freshman enrollment varying, with distribution between programs constant;
(2) total freshmen enrollment varying, with distribution between programs varying;
(3) total freshman enrollment constant, with distribution between programs varying;
(4) total freshman enrollment constant, with distribution between programs constant.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 2 Cards/Sheet 4	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	U	D	E	N	T		0	3

Sys. Id. (77 78 79 80)

NEW ENTRANTS WITH ADVANCED ACADEMIC STANDING

Program Code (11 12 13)	Cr.Rg./Ac.Yr.	Sim. Prd.	New Entrants	Cr.Rg./Ac.Yr.	Sim. Prd.	New Entrants	Cr.Rg./Ac.Yr.	Sim. Prd.	New Entrants	Cr.Rg./Ac.Yr.	Sim. Prd.	New Entrants
	14 15	16	17 18 19	20 21	22	23 24 25	26 27	28	29 30 31	32 33	34	35 36 37
	38 39	40	41 42 43	44 45	46	47 48 49	50 51	52	53 54 55	56 57	58	59 60 61
11 12 13	14 15	16	17 18 19	20 21	22	23 24 25	26 27	28	29 30 31	32 33	34	35 36 37
	38 39	40	41 42 43	44 45	46	47 48 49	50 51	52	53 54 55	56 57	58	59 60 61
11 12 13	14 15	16	17 18 19	20 21	22	23 24 25	26 27	28	29 30 31	32 33	34	35 36 37
	38 39	40	41 42 43	44 45	46	47 48 49	50 51	52	53 54 55	56 57	58	59 60 61
11 12 13	14 15	16	17 18 19	20 21	22	23 24 25	26 27	28	29 30 31	32 33	34	35 36 37
	38 39	40	41 42 43	44 45	46	47 48 49	50 51	52	53 54 55	56 57	58	59 60 61

Explanation:

(a) Code across the page, four simulation periods per line.
(b) If more than two lines are needed to code new entrants into all relevant academic years/credit ranges and simulation periods of a program, repeat the program code wherever allowed for.
(c) Begin each program on a line that provides for the program code in the first three columns; i.e. if only one line is necessary to code new entrants into a program, leave the following line blank.
(d) Use additional coding sheets of this type, as needed, to code new entrants into all applicable programs.

New Entrants with Advanced Academic Standing

Coding Instruction

Information	Card Columns
Program node (maximum of 80 nodes); only one program node per card.	11-13
(Note that the following data are 8 sets per card)	
Credit range (must be consistent with PROGRAM 01) (maximum of 6 ranges).	14-15
Simulation period (maximum of 3 periods).	16
Number of new entrants (real number).	17-19

Repeats: The 2nd set of data starts in columns 20-21 (credit range), the 3rd set in columns 26-27, and so on.

Explanation

For the first simulation period being run, this command is used to read in an initial inventory of students at all levels of on-going programs. Thereafter, enrollment is calculated internally by the model on the basis of credit accumulation and this command is used to enter the usually small number of students transferring into the college from other colleges.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions:	Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	U	D	E	N	T		0	4

Sys. Id.

77	78	79	80

STUDENT TRANSITIONS

Origin		Destination I		Destination II		Destination III		Destination IV		Destination V		Destination VI	
Prog. Code	Cr.Rg/ Ac.Yr.	Prog.Cr.Rg/ Code Ac.Yr.	Trans Rate	Prog.Cr.Rg/ Code Ac.Yr.	Trans Rate	Prog. Code	Cr.Rg/Trans Ac.Yr.Rate	ProgCr.Rg/ Code Ac.Yr.	Trans Rate	Prog.Cr.Rg./Trans. Code Ac.Yr	Rate	Prog.Cr.Rg./Trans Code Ac.Yr.	Rate
11 12 13	14 15	16 17 18	19 20 21 22 23	24 25 26	27 28 29 30 31	32 33 34	35 36 37 38 39	40 41 42	43 44 45 46 47	48 49 50	51 52 53 54 55	56 57 58	59 60 61 62 63

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EXPLANATION:

(a) Code across the page, six transitions per line.
(b) New origin academic years/credit ranges within a program and new programs must begin on a new line.
(c) Transition rate must be expressed as a percentage with no decimal place.
(d) Use additional coding sheets of this type, as needed, to code all transitions within and between programs.

Student Transitions

Coding Instruction

Information	Card Columns
Origin program code (see DEFINE 05) (maximum of 80 codes); only one origin program code per card.	11-13
Origin credit range (maximum of 3 ranges); only one origin credit range per card.	14-15
(Note that the following data are 6 sets per card)	
Destination program code.	16-18
Destination credit range (00 = dropout).	19-20
Transition rate (percentage of students undergoing transition).	21-23

Repeats: The 2nd set of data continues on in column 24-26, 27-28 for destination program code, and credit year and so on.

Explanation

Where a credit system is operative, transition rates are attached directly to each activity in ACTIVITY 06. Controlled by those rates and the average credit load undertaken by students at each program, the model traces the accumulation of credits by students at each program and internally transits them through credit ranges.

The STUDENT 04 command allows changes of major and dropouts. The capacity exists to handle several situations:

pass and transfer to next credit range of a different program;
fail and remain in the same credit range of a different program, and
fail and drop out of college.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	U	D	E	N	T		0	5

Sys. Id.

77	78	79	80

STUDENT CREDIT LOAD

Prog. Code (11 12 13)	Sim. Period (14)	Credit Load (15 16)	Student Part'n(%) (17 18 19)	Sim. Period (20)	Credit Load (21 22)	Student Part'n(%) (23 24 25)	Sim. Period (26)	Credit Load (27 28)	Student Part'n(%) (29 30 31)	Sim. Period (32)	Credit Load (33 34)	Student Part'n(%) (35 36 37)

Explanation:

(a) Code across the page, four credit loads per line, in ascending order of number of credits in a credit load.
(b) Where the number of credit loads in a given simulation period of a program is less than four, a new simulation period may begin in mid-line. A new program however, must begin on a new line.
(c) Student participation must be expressed as a percentage with no decimal place.
(d) Use additional coding sheets of this type, as needed, to code credit loads for applicable simulation periods of all programs.

Student Credit Load

Coding Instruction

Information	Card Columns
Program code (see DEFINE 05) (maximum of 80 codes); only one program code per card.	11-13
(Note that the following data are 4 sets per card)	
Simulation period (maximum of 3 per session).	14
Student credit load (maximum of 4 different credit loads).	15-16
Student percent participation (no decimal place percentage).	17-19

Repeats: The 2nd set of data starts in column 20 (simulation period), the 3rd in column 26, the 4th in column 32.

Explanation

Student credit loads are read in by program and by simulation period, the user can specify up to four different credit loads, attaching a participation rate to each. Participation rate is the percentage of the total number of students in the program who undertake a particular credit load.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	A	F	F				0	1

Sys. Id.

77	78	79	80

ACADEMIC STAFF RANKS COMMON TO ALL COST CENTERS

Rank Code (11–12)	Rank Name (13–28)	Average Annual Salary (29–31)	Weekly Staffing Units (32–33)	Office Space (34–36)

Explanation:
(a) Code across the page, one academic staff rank per line.
(b) Salary must be expressed in hundreds of dollars; office space, in square feet.

Academic Staff Ranks

Coding Instruction

Information	Card Columns
Rank code, maximum of 8 codes).	11-12
Rank Name	13-28

e.g.

Rank Code	Rank Name
1	Part-time day
2	Part-time night
3	Chairman
4	Assistant Chairman
5	Professor
6	Associate Professor
7	Assistant Professor
8	Lecturer

Note: Rank codes 1 and 2 must always be part-time ranks. Codes 3 through the maximum number of ranks should correspond to ranks listed in descending order of staff position.

Average salary per simulation period (in $100's).	29-31
Weekly staffing units available for each individual in this rank.	32-33
Office space planning factor (sq. ft. per individual by ranks).	34-36

Explanation

Academic staff is broken down by rank. Ranks 1 and 2 are reserved for different types of part-time staff, but beyond that constraint ranks are entirely open to user's specification. To each rank is attached an average salary per simulation period, office space allotment and number of staffing units available per individual in this rank. A staffing unit may be taken as 1 hour, or as something greater or less than an hour's work. The total staffing units specified refers to the number of hours or units of work to which a staff member is committed each week. This information is common to all cost centers at one level.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 4 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	A	F	F				0	2

Sys. Id.

77	78	79	80

ACADEMIC STAFF TEACHING DUTIES COMMON TO ALL COST CENTERS

Activity Type Code	No. of Staffing Units Credit Per Contact Hour	Activity Type Code	No. of Staffing Units Credit Per Contact Hour
11 12	13 14 15 16	17 18	19 20 21 22
23 24	25 26 27 28	29 30	31 32 33 34
35 36	37 38 39 40	41 42	43 44 45 46

Explanation:

(a) Code across the page, two activity types per line.
(b) Number of staffing units credit per contact hour must be expressed to two decimal places.

Academic Staff Activity Duties

Coding Instruction

Information	Card Columns
Activity type code (see ACTIVITY 01)	11-12
Number of staffing units credit per contact hour, (2 decimal place).	13-16

Repeats: There are 10 sets of information per card. The 2nd set starts in columns 17-18 (activity type code), the 3rd in columns 23 and 24, and so on.

Explanation

The user defines his policy regarding the ratio of staffing units required for each type of activity. These types have been specified earlier in ACTIVITY 01. The value might bear a 1:1 ratio with contact hours or it might be weighted according to some criteria of amount of preparation time, degree of difficulty etc. For example, if lecturing is assigned a 3.00 unit value per contact hour and laboratory direction assigned 2.00 unit value: the lecturer would be using two hours preparation outside of class for each contact hour, and the laboratory assignment would be spending one hour outside for each contact hour in the laboratory.

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 5	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	AF	F					0	3

Sys. Id.

77	78	79	80

ACADEMIC STAFF NON-TEACHING DUTIES COMMON TO

ALL COST CENTERS

Non-teaching Duty Code (11-12)	Duty Name (13-28)	Rank Req'd (29-30)	Weekly Credit of Staffing Units (31-34)	Prop'l Basis (35-36)	Quantity (37-41)	Prop'l Basis (42-43)	Quantity (44-48)	Prop'l Basis (49-50)	Quantity (51-55)

Explanation:

(a) Code across the page, one non-teaching duty per line.
(b) Where a duty is not rank specific, code a 00 in column 30. Otherwise, fill in rank required with the appropriate rank code.
(c) Quantity must be expressed to two decimal places.

Academic Staff Non-Teaching Duties

Coding Instruction

Information	Card Columns
Non-teaching duty code (maximum of 5 codes).	11-12
Non-teaching duty name	13-28
Rank required	29-30
Weekly credit of staffing units (whole number).	31-34
Functional basis*	35-36
Quantity in proportion*	37-41

Non-teaching duty name
e.g.,

Non-teaching duty code	Non-teaching duty name
1	Department Chairman
2	Program Director
3	Student Counselling

Rank required
e.g., 1-5 rank specific duty
3 - chairman
5 - professor
99 - general
} Rank required

Functional basis* } (note that there are 3 sets of these information per card**)
Quantity in proportion* } (note that there are 3 sets of these information per card**)

Repeats: The 2nd functional basis is entered in columns 42-45, and the quantity in proportion in columns 44-48; the 3rd functional basis is entered in columns 49-50, and the quantity in proportion in columns 51-55.

*See Exhibit 5 for definition and for list of available functional bases.

**This will allow the model to estimate the demand for staff based on more than one variable, e.g.,

$$y = a_1x_1 + a_2x_2 + a_3x_3$$

Explanation

Non-teaching duties might include the administrative work of a department chairman to which a significant portion of the chairman's weekly commitment will be assigned. It might also include things like student counselling which will consume a relatively small portion of the staffing units required by all ranks of academic staff. In addition to assigning values to the duties by quantity in proportion, the basis on which they are to be calculated is specified by functional basis. For example, student counselling might be based on number of students, such that five hours of counselling must be available for every hundred students where this information applies to all cost centers.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 2 Cards/Sheet 3	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	T	A	F	F				0	4

Sys. Id.

77	78	79	80

ACADEMIC SUPPORT STAFF COMMON TO ALL COST CENTERS

Type Code (11–12)	Type Name (13–28)	Average Annual Salary (29–31)	No. of Contact Hrs. Available per Wk. (32–33)	Office Space (34–36)
37–38	39–54	55–57	58–59	60–62
37–38	39–54	55–57	58–59	60–62
37–38	39–54	55–57	58–59	60–62
37–38	39–54	55–57	58–59	60–62

Explanation:

(a) Code across the page, one academic support staff type per line.
(b) Salary must be expressed in hundreds of dollars.
(c) Number of contact hours is expressed with no decimal place.
(d) Office space is expressed in square feet.

Academic Support Staff

Coding Instruction

Information	Card Columns
Type code (maximum of 5 types of academic support staff).	11-12
Type name	13-28

e.g.,

Type Code	Type Name
1	tutor
2	demonstrator
3	junior lecturer
4	lab. assistant
etc.	

Average salary per simulation period (in $100's).	29-31
Number of contact hours available per week (not staffing units).	32-33
Office space planning factor (sq. ft. of office space).	34-36

Repeats: There are 2 sets of information per card. The 2nd set starts in columns 37-38 (type code), and so on.

Explanation

Academic support staff refers to people like teaching assistants or laboratory demonstrators who are direct resources to activities. Information attached tc each type of support staff is average salary, contact hours that they are available per week, and office space allotment.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	[illegible]	[illegible]	F	F				0	S

Sys. Id.

77	78	79	80

NON-ACADEMIC STAFF

Cost Ctr. Level	Cost Ctr. Code	Non-Ac. Staff Type Code	Non-Academic Staff Type Name	Average Annual Salary	Office Space	Prop'l Basis	Quantity	Prop'l Basis	Quantity	Prop'l Basis	Quantity
11	12 13 14	15 16	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	33 34 35	36 37 38	39 40	41 42 43 44 45	46 47	48 49 50 51 52	53 54	55 56 57 58 59

Explanation:

(a) Code across the page, one non-academic staff type per line.
(b) Salary must be expressed in hundreds of dollars; office space, in square feet.
(c) Quantity must be expressed to two decimal places.
(d) Use additional coding sheets of this type, as needed, to code all non-academic staff types common to all cost centers at one cost center level.

Non-Academic Staff

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center node.	12-14
Non-Academic Staff type code (maximum of 10 codes).	15-16
Type name, e.g.,	17-32

Type Code	Type Name
1	President
2	Administrative Assistant
3	Secretary
etc.	

Average salary per simulation period (in $100's).	33-35
Office space planning factor (sq. ft.).	36-38
Functional basis*. (There are up to 3 sets of these information per card.)	39-40
Quantity in proportion*.	41-45

Repeats: The 2nd functional basis is entered in columns 46-47, and the quantity in proportion in columns 48-52, and so on.

*See Exhibit 5.

Explanation

Non-academic staff may include administrative, technical or clerical staff at any cost center. In addition to average salary and office space allotment, the user can specify needs for the various types of non-academic staff in terms of some functional relationship with other variable factors of the college.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
X	S	T	A	F	F			0	1

Sys. Id.

77	78	79	80

ACADEMIC STAFF RANKS SPECIFIED BY COST CENTER

Cost Ctr. Level (11)	Cost Center (12-14)	Rank Code (15-16)	Average Annual Salary (17-19)	Weekly Staffing Units (20-21)	Office Space (22-23-24)

Explanation:

(a) Code across the page one staff rank per line.
(b) Salary must be expressed in hundreds of dollars; office space in square feet.
(c) Use additional coding sheets of this type, as needed, to code all cost center specific ranks of academic staff.

Academic Staff Ranks Specified by Cost Center

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center node.	12-14
Rank code from STAFF 01	15-16
Average salary per simulation period (in $100's).	17-19
Weekly staffing units.	20-21
Office space planning factor (sq. ft.).	22-24

Explanation

Refer to section 4.5.1 for explanation. Any exceptions peculiar to one cost center are specified in this command level.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 4 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
X	S	T	A	F	F			0	2

Sys. Id.

77	78	79	80

ACADEMIC STAFF TEACHING ACTIVITIES SPECIFIED BY COST CENTER

Cost Center Level	Cost Center Code	Activity Type Code	No. of Staffing Units Credit Per Contact Hour
11	12 13 14	15 16	17 18 19 20
21	22 23 24	25 26	27 28 29 30
31	32 33 34	35 36	37 38 39 40
41	42 43 44	45 46	47 48 49 50
51	52 53 54	55 56	57 58 59 60
61	62 63 64	65 66	67 68 69 70

Explanation:

(a) Code across the page, one activity type per line.
(b) Leave the cost center code blank where the information is common to all cost centers at a cost center level.
(c) Staffing units must be coded to two decimal places.
(d) Use additional coding sheets of this type, as needed to code all cost center specified teaching activities.

Academic Staff Teaching Activities Specified by Cost Center

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center node.	12-14
Activity type code (from ACTIVITY 01).	15-16
Number of staffing units credit per contact hour. (2 decimal places)	17-20

Repeats: There are 6 sets of information per card, the 2nd set continues in column 21 for cost center level, columns 22-24 for cost center node and so on.

Explanation

Similar to the explanation in section 4.5.2. Any exceptions peculiar to one cost center are specified by this command.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
X	S	T	AF	F				0	3

Sys. Id.

77	78	79	80

ACADEMIC STAFF NON-TEACHING DUTIES SPECIFIED BY COST CENTER

Cost Center Level	Cost Center Code	Non-Teaching Duty Code	Rank Req'd	Weekly Credit of Staffing Units	Prop'l Basis	Quantity	Prop'l Basis	Quantity	Prop'l Basis	Quantity
11	12 13 14	15 16	17 18	19 20 21 22	23 24	25 26 27 28 29	30 31	32 33 34 35 36	37 38	39 40 41 42 43

Explanation:

(a) Code across the page, one non-teaching duty per line.
(b) Where information on a duty applies to all cost centers at one level, leave the cost center code blank.
(c) If the duty is not rank specific, code a 99 in column 17-18. Otherwise, code rank required with the appropriate rank code.
(d) Quantity must be expressed to two decimal places. At least one proportional basis and quantity must be specified for each duty.
(e) Use additional coding sheets of this type, as needed, to code all cost center specified non-teaching duties.

Academic Staff Non-Teaching Duties Specified by Cost Center

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center node.	12-14
Non-teaching duty code (STAFF 03) e.g., 1 - Chairman 2 - Program Director 3 - Student Counselling	15-16
Rank required (if not specific code rank of type 99).	17-18
Weekly credit of staffing units.	19-22
(Note that the following data are 3 sets per card)	
Functional basis. (See Exhibit 5.)	23-24
Quantity in proportion. (See Exhibit 5.)	25-29

Repeats: The 2nd set of data starts in columns 30-31 for functional basis, and columns 32-36 for quantity in proportion, the 3rd set continues in column 37, and so on.

Explanation

Similar to the explanation in section 5.3. Cost centers with exceptions are specified by this command.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 2 Cards/Sheet 4	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
X	S	T	A	F	F			0	4

Sys. Id.

77	78	79	80

ACADEMIC STAFF INVENTORY, TRANSITION AND HIRING CRITERIA SPECIFIED BY COST CENTER

Cost Ctr. Code	Rank Code	Hiring Code	Initial Inventory	Transitions: Same	Transitions: Promote	Hiring Criteria: Min. Desired	Hiring Criteria: Maximum Fixed	Percent Distribution: Minimum Desired	Percent Distribution: Maximum Desired
11 12 13 / 32 33 34	14 15 / 35 36	16 / 37	17 18 19 / 38 39 40	20 21 / 41 42	22 23 / 43 44	24 25 / 45 46	26 27 / 47 48	28 29 / 49 50	30 31 / 51 52
11 12 13 / 32 33 34	14 15 / 35 36	16 / 37	17 18 19 / 38 39 40	20 21 / 41 42	22 23 / 43 44	24 25 / 45 46	26 27 / 47 48	28 29 / 49 50	30 31 / 51 52
11 12 13 / 32 33 34	14 15 / 35 36	16 / 37	17 18 19 / 38 39 40	20 21 / 41 42	22 23 / 43 44	24 25 / 45 46	26 27 / 47 48	28 29 / 49 50	30 31 / 51 52
11 12 13 / 32 33 34	14 15 / 35 36	16 / 37	17 18 19 / 38 39 40	20 21 / 41 42	22 23 / 43 44	24 25 / 45 46	26 27 / 47 48	28 29 / 49 50	30 31 / 51 52

Explanation:

(a) Code across the page, one rank per line.
(b) Hiring code: Yes - 1; No - 0.
(c) Transition must be coded as a percentage with no decimal place.
(d) Use additional coding sheets of this type, as needed, to code all ranks of cost center specific academic staff.

Academic Staff Inventory, Transition, and Hiring Criteria Specified by Cost Center

Coding Instruction

Information	Card Columns
Cost center node.	11-13
Rank Code.	14-15
Hiring code (0 = no hiring; 1 = hire if needed).	16
Initial inventory.	17-19
Percent that remain in this same rank.	20-21
Percent that are promoted.	22-23
Minimum to be hired at this rank.	24-25
Maximum to be hired at this rank.	26-27
Minimum percentage of all faculty permitted to hold this rank.	28-29
Maximum percentage of all faculty permitted to hold this rank.	30-31

Repeats: This command is only used once per simulation session. There are 2 sets of information per card. The 2nd set starts in columns 32-34 for cost center code, columns 35-36 for rank code, and so on.

Explanation

For each rank it is possible to choose between hiring staff from outside by or promoting someone already on the college staff at a lower rank. The latter will often be the policy for department chairman. Transitions are also read in, based on policy or historical experience or some combination of the two. Transitions are expressed as the percentage of staff of one rank that stay at that rank and the percentage that are promoted.

Hiring criteria permit the user to state policy on minimum and

and maximum number of people to be hired annually at each rank. For example, a department might hire one new professor each year regardless of whether he is necessary to cover the teaching load of the department. Alternatively the user might specify a minimum of zero, leaving the model to hire up to the generated staff requirements. The percentage distribution between ranks (the desired mix of staff) is set up in terms of a maximum and minimum for each rank. The inventory of existing staff is also specified.

CAMPUS-MINESSIA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
X	S	T	A	F	F			0	5

Sys. Id.

77	78	79	80

ACADEMIC STAFF OPTIMIZATION AND UPDATE POLICIES SPECIFIED BY COST CENTER

Cost Center Level	Cost Center Code	Staffing Optimization Policies I	II	III	IV	V	Staffing Update 1	2	3
11	12 13 14	15	16	17	18	19	20	21	22

Explanation:

(a) Code across the page, one cost center per line.
(b) Cost center level must always be coded. Leave the cost center code blank to indicate that this information is common to all cost centers at this level.
(c) See manual for Optimization Policies.
(d) Staff update is processed prior to simulation period 1, 2, 3 as indicated by Yes - 1; No - 0.
(e) Use additional coding sheets of this type, as needed, to code staff policy for all cost centers.

Academic Staff Optimization and Update Policies Specified by Cost Center

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center code.	12-14
Staffing optimization policies I, II, III, IV and V where	
I: Not used.	15
II: Not used.	16
III: 1 - minimize number of staff. 2 - minimize cost of staff.	17
IV: 1 - staff non-teaching duties. 2 - don't staff non-teaching duties unless there are excess staffing units. 3 - staff only teaching duties and record any excess staffing units.	18
V: 1 - destroy staff inventory before every simulation period. 0 - preserve staff inventory between simulation periods.	19
Staff update by simulation period (0 - no; 1 - yes).	20, 21, 22, 23

Explanation

The user may specify at what intervals the inventory of staff should be updated; whether before each simulation period or just before the first simulation period of any session.

Given this staff information, the model builds up staff contact hours required, on the basis of activities, then matches those requirements against the existing inventory to fill any deficits. It will have become apparent that several of the policies may be conflicting. For example, the percentage distribution

between ranks in XSTAFF 04 overrides optimization policy III of minimizing staff costs in this command level. Only when the first policy has been satisfied does the second become a criterion for hiring staff. Likewise if optimization policy V of zeroing out existing staff before every simulation period is adopted, it will automatically override the staff transition rate in XSTAFF 04.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 2 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	1

Sys. Id.

77	78	79	80

CLASSROOM SIZES

1	2	3	4	5
11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31 32 33 34 35

6	7	8	9	10
36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60

Explanation:

(a) Code across the page, five classroom sizes per line.
(b) Classroom size must be defined in terms of the number of stations.

Classroom Sizes

Coding Instruction

Information	Card Columns
Classroom size (maximum of 10 sizes) in ascending order.	
Repeats: The 2nd size is entered in columns 16-20, the 3rd one in columns 21-25, and so on.	

Explanation

Generally most institutions tend to build their classrooms or lecture halls in a few basic sizes. These sizes generally correspond to small seminar rooms, small lecture rooms, medium sized lecture rooms, and large lecture theaters. The classroom sizes to be specified by this command are the number of stations or seats to be provided in the classroom. The model builds up requirements for classrooms of the sizes specified by this command. Any inventory of available classrooms must be grouped according to the sizes specified here. Classroom sizes might be 10, 15, 20, 25, 30, 40, 60, 100, 200 and 300. In this example the number of classroom sizes is equal to 10 although any number up to 10 may be specified. It is not necessary to specify the last classroom size as some artifically large number like 999 stations. A realistic size for the large lecture theaters should be chosen and if the enrolment in some course exceeds that size the course will be tagged, and the station occupancy for that particular course will be rounded to 100%.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	2

Sys. Id.

77	78	79	80

L A B O R A T O R Y S I Z E S

(Instructional and Special)

97

1				
11	12	13	14	15

2				
16	17	18	19	20

3				
21	22	23	24	25

4				
26	27	28	29	30

5				
31	32	33	34	35

6				
36	37	38	39	40

Explanation:

(a) Code across the page, six laboratory sizes per sheet.
(b) Laboratory sizes must be defined in terms of number of stations.

Laboratory Sizes

Coding Instruction

Information	Card Columns
Laboratory size (maximum of 6 sizes in ascending order)	11-15

Repeats: The 2nd one continues in columns 16-20, the 3rd one in columns 21-25, and so on.

Explanation

Laboratory courses are generally scheduled for smaller groups. Laboratory sizes might be 15, 25, 40, 60, 80, and 100 stations. In this instance the number of laboratory sizes equals 6 but a few numbers could be specified. It is not necessary to code the last laboratory size as some artifically large room because if the enrolment in a particular laboratory course exceeds the largest laboratory size that course will be tagged and the station occupancy will be rounded to 100%.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 3	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	3

Sys. Id.

77	78	79	80

CLASSROOM SPACE PLANNING FACTORS

Clsrm. Type No.	Clsrm. Size No.	Clsrm. Sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station	Clsrm. Size No.	Clsrm. sq.ft./ Station
11 12	13 14	15 16 17	18 19	20 21 22	23 24	25 26 27	28 29	30 31 32	33 34	35 36 37	38 39	40 41 42	43 44	45 46 47	48 49	50 51 52	53 54	55 56 57	58 59	60 61 62
11 12	13 14	15 16 17	18 19	20 21 22	23 24	25 26 27	28 29	30 31 32	33 34	35 36 37	38 39	40 41 42	43 44	45 46 47	48 49	50 51 52	53 54	55 56 57	58 59	60 61 62
11 12	13 14	15 16 17	18 19	20 21 22	23 24	25 26 27	28 29	30 31 32	33 34	35 36 37	38 39	40 41 42	43 44	45 46 47	48 49	50 51 52	53 54	55 56 57	58 59	60 61 62

Classroom Space Planning Factors

Coding Instruction

Information	Card Columns
Type number from SPACE 04 (maximum 3).	11-12
(The following data are 10 sets per card)	
Classroom size number from SPACE 01 (maximum 10).	13-14
Square feet/station.	15-17

Repeats: The 2nd set continues in columns 18-19 for classroom size number, columns 20-22 for square feet/station, the 3rd set continues in columns 23-24 for classroom size number, and so on.

Explanation

In order to compute the number of square feet of classroom space required by an institution, one must know the number of square feet per station which is multiplied by the size of the room in stations by the number of rooms required. As the size of a classroom increases there is generally less isle per station, hence, the square feet per station factor is read in for each size of classroom. These square feet per station factors are also likely to vary with different types of classrooms. The number of square feet per station includes all space between the seats, isle space, and space occupied by the front desk in the room if this exists.

CAMPUS-MINNESOTA Input Document

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 3 Decimal points are not to be keypunched	Sheet___of___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	4

Sys. Id.

77	78	79	80

CLASSROOM CHARACTERISTICS BY TYPE

101

Classroom Type No.	Classroom Type Name	Maintenance Cost	Service Characteristics Codes 1	2	3	4	5	Equipment Capital Cost Basis	Quantity
11 12	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	29 30 31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 46

Explanation: a) Code across the page, one classroom type per line

b) Maintenance cost must be expressed in dollars per square foot to two decimal places.

c) Equipment capital cost quantity is expressed in hundreds of dollars.

Classroom Type Characteristics

Coding Instruction

Information	Card Columns
Type number, maximum of 3 types).	11-12
Type name, e.g., classrooms with tables and chairs, classrooms with table and arm seating, etc.	13-28
Maintenance cost $/sq. ft. to the nearest cent.	29-32
Service codes from SPACE 11, maximum of 5 per classroom type).	33-34, 35-36, 37-38, 39-40, 41-42
Equipment capital cost basis, e.g., based on the number of square feet in a room, the number of stations in that room, etc.; the precise bases can be chosen from the list of functional bases in Exhibit 5.	43-44
The equipment capital cost quantity in real dollars per whatever basis is chosen.	45-48

Explanation

The institutions may wish to plan for several different types of classrooms. Example types are classrooms with tables and chairs, or classrooms with table and arm seating. Classroom type is specified by name and a number. If an institution is able to differentiate between the cost of maintaining the classroom type and another they may indicate the maintenance cost here in dollars per square feet. As an alternative the maintenance cost could be specified by space category in SPACE 12 for the classroom space category. If the maintenace cost is input in SPACE 12 for the classroom category, then the maintenance cost would apply to all types of classrooms.

The service characteristics codes specified in SPACE 11 would be inserted here to describe the utilities or services commonly provided for each type of classroom.

The equipment capital cost bases and quantity are used in calculating the cost of furnishing a particular classroom type. For example, information would be specified here which would indicate the cost of providing tablet armed seating or tables and chairs in a classroom.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 5	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	5

Sys. Id.

77	78	79	80

INSTRUCTIONAL LABORATORY SPACE PLANNING FACTORS

Lab. Type No. (11 12)	Lab. Size No. (13 14)	Sq.ft./ Station (15 16 17)	Lab. Size No. (18 19)	Sq.ft./ Station (20 21 22)	Lab. Size No. (23 24)	Sq.ft./ Station (25 26 27)	Lab. Size No. (28 29)	Sq.ft./ Station (30 31 32)	Lab. Size No. (33 34)	Sq.ft./ Station (35 36 37)	Lab. Size No. (38 39)	Sq.ft./ Station (40 41 42)

Explanation:
(a) Code across the page, six laboratory sizes per line.
(b) Instructional special laboratories, as defined in the coding manual, are not coded on this sheet.

Instructional Laboratory Space Planning Factors

Coding Instruction

Information	Card Columns
Type number from SPACE 06 (maximum of 5 types).	11-12
(Note that the following data are 6 sets per card)	
Lab. size number from SPACE 02 (maximum of 6 sizes).	13-14
Square feet/station (includes the area occupied by the benches, tables, chairs, or other furniture as well as aisle space).	15-17

Repeats: The 2nd set starts in columns 18-19 (lab. size), the 3rd set in columns 23-24, and so on.

Explanation

The instructional laboratory space category should include rooms equipped for student participation in general laboratory activities where no special equipment, services, or utilities are built into the room that preclude scheduling of more than one type of laboratory activity. Instructional laboratories include dry laboratories, laboratories with water supplied to each station or group of stations, wet laboratories with gas, drafting rooms, art studios, etc. The number of square feet per station will probably vary for each type of instructional lab. type. This relects the fact that there is less isle space per station as the lab. size increases. The number of square feet per station includes the area occupied by the benches, tables, chairs, or other furniture as well as aisle space.

CAMPUS-MINNESOTA Input Document

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 5 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	PA	C	E					06	

Sys. Id.

77	78	79	80

INSTRUCTIONAL LABORATORY CHARACTERISTICS BY TYPE

Lab. Type No. (11-12)	Instructional Laboratory Type Name (13-28)	Maintenance Cost (29-32)	Service Characteristic Codes 1 (33-34)	2 (35-36)	3 (37-38)	4 (39-40)	5 (41-42)	Equipment Capital Cost Basis (43-44)	Quantity (45-46)

Explanation: a) Code across the page, one instructional laboratory type per line.
b) Maintenance cost must be expressed in dollars per square foot, to two decimal places.
c) Equipment capital cost quantity is expressed in hundreds of dollars.

Instructional Laboratory Type Characteristics

Coding Instruction

Information	Card Columns
Type number (maximum of 5 types).	11-12
Type name, e.g., dry lab, wet lab with gas, etc.	13-28
Maintenance cost $/sq. ft. to nearest cent.	29-32
Service codes from SPACE 11, maximum of 5 codes per instructional laboratory type.	33-34, 35-36, 37-38, 39-40, 41-42
Equipment capital cost basis (the precise bases can be chosen from the list of functional bases in Exhibit 5).	43-44
The equipment capital cost quantity, in real dollars per sq. ft. or per station.	45-48

Explanation

As mentioned in SPACE 05, certain types of laboratories can be enumerated which will house certain general laboratory activities. One example is a room with benches or tables suitable for drafting or mathematical computations or typing and which is usually called a dry laboratory. Another example is a lab. commonly referred to as a wet laboratory and containing benches with water and sinks suitable for general chemistry and physics experiments. The instructional laboratories type must be numbered starting at 1 in ascending order, and the lab. type name is also specified. If the institution distinguishs between the cost of maintaining one type of lab and another, then they may specify their maintenance cost for each type of instructional lab. If this detailed information is not available, the maintained cost for instructional laboratories may be specified in SPACE 12 for the instructional laboratories space categories. Each type of instructional laboratory can probably be described by the particular services or utilities provided for that space. Certain

service code descriptors as specified in SPACE 11 may be attached to a particular instructional lab. When the program is generating requirements for that type of lab, it will also indicate that a certain portion of the total space provided at the institution must have that particular service or utility provided.

The equipment capital cost basis and quantity enable the program to compute the cost of furniture and other equipment necessary for that particular lab. type. This is usually done on a dollar per station or dollar per square feet basis.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	7

Sys. Id.

77	78	79	80

INSTRUCTIONAL SPECIAL LABORATORY SPACE PLANNING FACTORS

Equipment Size Code (11 12)	Lab. Size No. (13 14)	Sq.ft./ Station (15 16 17)	Lab. Size No. (18 19)	Sq.ft./ Station (20 21 22)	Lab. Size No. (23 24)	sq.ft./ Station (25 26 27)	Lab. Size No. (28 29)	Sq.ft./ Station (30 31 32)	Lab. Size No. (33 34)	Sq.ft./ Station (35 36 37)	Lab. Size No. (38 39)	Sq.ft./ Station (40 41 42)

Explanation:
(a) Code across the page, six laboratory sizes per line.

Instructional Special Laboratory Space Planning Factors

Coding Instruction

Information	Card Columns
Equipment size code (maximum of 3 codes), e.g. 1 - small equipment lab. 2 - medium equipment lab. 3 - large equipment lab.	11-12
(Note that the following data are 6 sets per card)	
Special lab. size number (maximum of 6 sizes).	13-14
Square Feet/station.	15-17

Repeats: The 2nd set starts in columns 18-19 with special lab. size number, the 3rd set continues in columns 23-24, and so on.

Explanation

The number of square feet per station is specified for each classroom or lab. size within each type of classroom or lab. Because of the many different special laboratories used in colleges and universities it would be an arduous task to try and collect space planning factors for every special lab. type. For this reason the various types of special labs. can be built into certain size ranges. These size ranges would probably correspond to special labs. with very small equipment, labs. with medium size equipment, and large equipment labs. The space planning factor for the small equipment labs. would probably correspond to the space planning factor for a standard dry instructional laboratory. The number of equipment size ranges depends on the types of special lab. the institution is planning to construct. Each equipment size range must be given a code. The number of square feet per station must then be determined for each size of special lab. The same laboratory sizes are used for special laboratories and instructional laboratories and are specified in SPACE 02. The square feet per station factors include all space needed for the equipment, benches, seats and isle space in the room.

Coder _____ | Run Number _____ | Punching Instructions: Lines/Card 1 Cards/Sheet 10 Do not keypunch decimal points. | Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				0	8

INSTRUCTIONAL SPECIAL LABORATORY CHARACTERISTICS BY TYPE

Sys. Id.

77	78	79	80

Type No.	Special Laboratory Type Name	Equipment Size Code	Maintenance Cost	Construction Cost	Equipment Capital Cost Basis	Equipment Capital Cost Quantity	Equipment Operating Cost Basis	Equipment Operating Cost Quantity	Service Characteristic Codes 1	2	3	4	5	6	7	8	9	10
11 12	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	29 30	31 32 33 34	35 36 37	38 39	40 41 42 43	44 45	46 47 48 49 50	51 52	53 54	55 56	57 58	59 60	61 62	63 64	65 66	67 68	69 70

Explanation:
a) Code across the page, one instructional special laboratory type per line.
b) Maintenance cost must be expressed in dollars per square foot, to two decimal places.
c) Construction cost must be expressed in dollars per square foot.
d) Equipment capital cost quantity is in hundreds of dollars.
e) Equipment operating cost quantity is in dollars.
f) Use additional coding sheets of this type, as needed, to code all special laboratory types.

Instructional Special Laboratory Type Characteristics

Coding Instruction

Information	Card Columns
Type number (maximum of 35 types).	11-12
Special lab. type name.	13-28
Equipment Size Code from SPACE 07, e.g., 1 - small equipment 2 - medium equipment 3 - large equipment	29-30
Maintenance cost ($/sq. ft.)	31-34
Construction cost ($/sq. ft.)	35-37
Equipment capital cost basis (the precise bases can be chosen from the list of functional bases in Exhibit 5).	38-39
Equipment capital cost quantity (in $100/period).	40-43
Equipment basis.	44-45
Operating cost quantity (in $/period).	46-50
Service codes from SPACE 11 (maximum of 10 codes).	51-52, 53-54
Service codes per special lab. type	55-56, ..., 69-70

Explanation

The instructional special laboratory type must be numbered starting at 1 in ascending order. The type name for each number is also given. The equipment size can be specified as size ranges, such as small equipment, medium equipment, and large equipment. If the institutions are able to distinguish between the cost in maintaining one type of special lab. to another they may specify the maintenance cost for each type of instructional special lab. may be specified in SPACE 12 for instructional special lab. categories. Construction cost by type expressed in dollars per square feet.

Operating cost of special labs. are expressed by some functional basis and quantity. The service codes specified in SPACE 11 would be inserted here to describe the utilities or services commonly provided for each type of instructional special lab.

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Do not keypunch decimal points	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
SP	A	C	E					09	

Sys. Id.

77	78	79	80

SERVICE SPACE CHARACTERISTICS BY TYPE

Service Space Type No. (11-13)	Service Space Type Name (14-21)	Maintenance Cost (22-25)	Service Characteristic Codes 1 (26-27)	2 (28-29)	3 (30-31)	4 (32-33)	5 (34-35)

Service Space Type No. (36-38)	Service Space Type Name (39-46)	Maintenance Cost (47-50)	Service Characteristic Codes 1 (51-52)	2 (53-54)	3 (55-56)	4 (57-58)	5 (59-60)

Explanation:
a) Code across the page, two service space types per line.
b) Maintenance cost must be expressed in dollars per square foot, to two decimal places.
c) Use additional coding sheets of this type, as needed, to code all types of service space.

Service Space Characteristics

Coding Instruction

Information	Card Columns
Service space type (maximum of 40 types).	11-13
Service space type name.	14-21
Maintenance costs $/sq. ft./period.	22-25
Service codes (maximum of 5 codes).	26-27, 28-29
Service codes per service space type.	30-31, 32-33, 34-35

Repeats: There are 2 sets of information per card. The 2nd set continues in columns 36-38 for service space type, and so on.

Explanation

The service space type is specified on this form as 1, 2, 3, in ascending order, and the name for each type is also defined in this command. The maintained cost for each type of service space is specified here in dollars per sq. ft. per period. The service characteristic codes specified in SPACE 11 should be inserted here to describe the utilities or services.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 2 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	E	A	C	E				1	0

Sys. Id.

77	78	79	80

COST CENTER SPACE CHARACTERISTICS

Cost Center Level No.	Code	Clsrm. Teaching Wk (Hrs.)	Clsrm. Util.	Lab. Teaching Wk (Hrs.)	Lab. Util.	Cost Center Level No.	Code	Clsrm. Teaching Wk (Hrs.)	Clsrm. Util.	Lab. Tchng. Wk (Hrs.)	Lab. Util.	Cost Center Level No.	Code	Clsrm. Teaching Wk (Hrs.)	Clsrm. Util.	Lab. Teaching Wk (Hrs.)	Lab. Util.
11	12 13 14	15 16	17 18	19 20	21 22	23	24 25 26	27 28	29 30	31 32	33 34	35	36 37 38	39 40	41 42	43 44	45 46
47	48 49 50	51 52	53 54	55 56	57 58	59	60 61 62	63 64	65 66	67 68	69 70						
11	12 13 14	15 16	17 18	19 20	21 22	23	24 25 26	27 28	29 30	31 32	33 34	35	36 37 38	39 40	41 42	43 44	45 46
47	48 49 50	51 52	53 54	55 56	57 58	59	60 61 62	63 64	65 66	67 68	69 70						

Explanation:

(a) Code across the page, three cost centers per line.
(b) Where characteristics apply for all cost centers at one level, code only the level number.
(c) Classroom and laboratory utilization is expressed as a percentage with no decimal place.
(d) Use additional sheets of this type, as needed, to code space characteristics for all cost centers.

Cost Center Space Characteristics

Coding Instruction

Information	Card Columns
Level number from DEFINE 02.	11
Cost center node from DEFINE 03.	12-14
Classroom teaching week (hours).	15-16
Classroom utilization (whole number percentage).	17-18
Laboratory teaching week (hours).	19-20
Laboratory utilization (whole number percentage).	21-22

Repeats: There are 5 sets of information per card. The 2nd set starts in column 23 for level number and so on.

Explanation

Specified by cost center, the teaching week for the classroom and laboratory refers to the number of hours per week that classes are in session. The utilization factor is some percentage of the teaching week that rooms can be used, taking into account the problems of scheduling. These factors place a constraint on the available space and commensurately increase the amount of space required.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				1	1

Sys. Id.

77	78	79	80

SERVICE CHARACTERISTICS

Service Code	Service Name	Service Code	Service Name	Service Code	Service Name
11 12	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	47 48	49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

Explanation:

(a) Code across the page, three services per line.
(b) Use additional coding sheets of this type, as needed, to code all services.

Service Characteristics

Coding Instruction

Information	Card Columns
Service code (maximum of 40 cards).	11-12
Service code name (i.e., service code descriptors).	13-28

Repeats: There are 3 sets of information per card. The 2nd set continues in columns 29-30 for service code, and columns 31-46 for service code name. The 3rd set continues in column 47-48 for service code, and so on.

Explanation

The service characteristics codes are specified here in ascending order starting at 1. The characteristic name is also defined for each type of service. These codes are used by the model to describe the utilities or services such as air conditioning, special lighting, etc.

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Do not keypunch decimal points	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				1	2

COST INFORMATION BY SPACE CATEGORY

Sys. Id.

77	78	79	80

Space Category Code (11–12)	Space Category Name (13–28)	Construction Cost (29–31)	Maintenance Cost (32–35)	Space Category Code (36–37)	Space Category Name (38–53)	Construction Cost (54–56)	Maintenance Cost (57–60)

120

Explanation:
a) Code across the page, two space categories per line.
b) Construction cost must be expressed in dollars per square foot.
c) Maintenance cost must be expressed as the dollar cost, to two decimal places, per square foot.
d) Use additional coding sheets of this type, as needed, to code all space categories.

Cost Information by Space Category

Coding Instruction

Information	Card Columns
Space Category Code (maximum of 30 codes).	11-12
Space Category Name.	13-28
Construction Cost ($/sq. ft).	29-31
Maintenance Cost($ and ¢/sq. ft).	32-35

Repeats: There are two sets of information per card. The second set continues in columns 36-37 for space category and so on.

Explanation

This command defines the Space Categories and gives the cost of construction and maintenance per square foot for each category. The maintenance costs for space is also specified by space types within categories in SPACE 04, 06, 08 and 09. These specifications by type on these four forms will override SPACE 12.

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				1	3

MISCELLANEOUS SPACE SPECIFICATIONS

Sys. Id.

77	78	79	80

Classroom Manipulation Desired: By Type?	Classroom Manipulation Desired: By Size?	Instructional Laboratory Manipulation Desired: By Type?	Instructional Laboratory Manipulation Desired: By Size?	Net/Gross Space Percentage	Net to Gross Construction Cost	Office Space Maintenance Cost	Office Space Service Characteristic Codes 1	2	3	4	5	Space Policy
11	12	13	14	15 16	17 18 19	20 21 22 23	24 25	26 27	28 29	30 31	32 33	34

Explanation:
a) Refer to coding manual.
b) Maintenance cost must be expressed as dollars per square foot, to two decimal places.
c) The net/gross space percentage is a zero decimal place percentage.
d) The net to gross construction cost is expressed as dollars per square foot.

Miscellaneous Space Specifications

Coding Instruction

Information	Card Columns
Classroom manipulation desired by type. code 1 - manipulation desired, code 0 - manipulation not desired.	11*
Classroom manipulation desired by size. code 1 - manipulation desired. code 0 - manipulation not desired	12*
Instructional lab. manipulation desired by type. code 1 - manipulation desired code 0 - manipulation not desired.	13*
Instruction lab. manipulation desired by size. code 1 - manipulation desired code 0 - manipulation not desired.	14*
Net/Gross space percentage.	15-16
Net to gross construction cost ($/sq. ft.).	17-19
Office space maintenance cost ($/sq. ft.).	20-23
Office service codes	24-25, 26-27, 28-29, 30-31, 32-33
Are space requirements satisfied each simulation period. code 1 - yes code 2 - no	34

Explanation

This command specifies several policies and factors.

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*Not available in CAMPUS-M.

1)* Manipulation policy: different manipulations of the requirements for classroom and instructional laboratory space can be performed by the model. These manipulations will assess to what extent requirements for space are lowered by using a different size or type of room to fulfill some particular requirement, this level specifies which policies have been chosen by the college space planner.

2) Net/Gross space percentage: net space refers to interior useable space, while gross space includes wall space and interior unuseable space consumed by columns etc.

3) Net/Gross construction cost: once net space requirements are determined, a certain amount of extra space is added to get gross space. The construction cost ($/sq. ft.) for extra space is provided here.

4) Maintenance cost for office space.

5) Office service characteristics.

6) Space Policy specifies if requirements are assumed built each session or if space requirements are allowed to accumulate without any construction taking place. This policy is used to investigate staging of a building program.

CAMPUS-MINNESOTA Input Document

Coder _____	Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 5	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	P	A	C	E				1	4

Sys. Id.

77	78	79	80

TEACHING SPACE CONTROL CENTERS

Cost Centre			Control Cl.	Control Lab.	Control over Sp. Lab.
11	12	13	14	16	15

Cost Centre			Control Cl.	Control Lab.	Control over Sp. Lab.
17	18	19	20	21	22

Cost Centre			Control Cl.	Control Lab.	Control over Sp. Lab.
23	24	25	26	27	28

Cost Centre			Control Cl.	Control Lab.	Control over Sp. Lab.
29	30	31	32	33	34

Cost Centre			Control Cl.	Control Lab.	Control over Sp. Lab.
35	36	37	38	39	40

Explanation: a) Code across the page, five cost centers per line.
b) Where a cost center controls classroom space and/or laboratories and/or special laboratories code a 1. Otherwise code 0.

Teaching Space Control Centers

Coding Instruction

Information	Card Columns
Cost center node.	11-13
Space control center for special labs., instructional labs., and classrooms, respectively. 1 = cost center is space controller for this type of space 0 = otherwise.	14, 15, 16

Repeats: There are five sets of information per card. The second set continues in columns 17-19 for the next cost center, and so on.

Explanation

In this command level, policy is specified as to whether classroom and laboratory space is controlled by some lower level cost center.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	V	L	S	P	A	C	E	0	1

Sys. Id.

77	78	79	80

AVAILABLE CLASSROOM SPACE

Cost Ctr. Code (11 12 13)	Clsrm. Type No. (18 19)	No. of Classrooms Available by Size 1 (20 21)	2 (22 23)	3 (24 25)	4 (26 27)	5 (28 29)	6 (30 31)	7 (32 33)	8 (34 35)	9 (36 37)	10 (38 39)	Clsrm. Type No. (40 41)	No. of Classrooms Available by Size 1 (42 43)	2 (44 45)	3 (46 47)	4 (48 49)	5 (50 51)	6 (52 53)	7 (54 55)	8 (56 57)	9 (58 59)	10 (60 61)

Explanation:

(a) Code across the page, two classroom types per line and the inventory of available classrooms of up to ten sizes per type.

(b) Where the number of classroom types at a cost center exceeds two, repeat the cost center code and data card information on all lines used.

(c) Columns 14-17 are not used.

Available Classroom Space

Coding Instruction

Information	Card Columns
Cost center node.	11-13
Blank.	14-17
Classroom type number from SPACE 04.	18-19
Number of classrooms available (Maximum of 10 classroom sizes per classroom type).	20-21
Number of classrooms available, size 2, 3, 4, 5, 6, 7, 8, 9 and 10.	22-23, 24-25, 26-27, 28-29, 30-31, 32-33, 34-35, 36-37, 38-39

Repeats: The next set of 10 classroom available sizes for the 2nd classroom type continues in columns 40, 41 for size 1, and columns 42-43 for size 2, and so on.

Explanation

Cost centers which control classroom space for the institution are specified in SPACE 14. For these cost centers we must indicate the number of classrooms of each size, and type available to that cost center. The available classrooms will be compared to the requirement for classrooms of each corresponding type and size. The classroom type number is the number defined in SPACE 04. The classroom size numbers 1 through 10 are defined in SPACE 01.

When the available classrooms are grouped into size categories, often it is difficult to tell how many stations are actually in a particular classroom. This occurs when we have movable tablet-arm chairs rather than seats bolted to the floor of a room. Often a few extra tablet-arm seats can be squeezed into the room to accommodate a larger than normal class. The size of the room in stations though should be catalogued as the number of seats that can comfortably be inserted into the room allowing for adequate isle space.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 3 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	V	I	S	P	A	C	E	0	2

Sys. Id. (77–80)

AVAILABLE INSTRUCTIONAL LABORATORY SPACE

Cost Ctr. Code (11–13)	Lab. Type No. (18–19)	1 (20–21)	2 (22–23)	3 (24–25)	4 (26–27)	5 (28–29)	6 (30–31)
	(32–33)	(34–35)	(36–37)	(38–39)	(40–41)	(42–43)	(44–45)
	(46–47)	(48–49)	(50–51)	(52–53)	(54–55)	(56–57)	(58–59)
(11–13)	(18–19)	(20–21)	(22–23)	(24–25)	(26–27)	(28–29)	(30–31)
	(32–33)	(34–35)	(36–37)	(38–39)	(40–41)	(42–43)	(44–45)
	(46–47)	(48–49)	(50–51)	(52–53)	(54–55)	(56–57)	(58–59)

No. of Laboratories Available by Size

Explanation:

(a) Code across the page one laboratory type per line, with the inventory of available laboratories of up to six sizes per type.

(b) Special laboratories, as defined in the coding manual, are not coded on this sheet.

(c) Where the number of laboratory types at a cost center exceeds three, use additional lines, repeating the cost center code card data card information, where called for. Begin each cost center inventory on a line that starts in column eleven.

(d) Use additional coding sheets of this type, as needed, to code the laboratory inventory at all cost centers.

(e) Columns 14-17 are not used.

Available Instructional Laboratory Space

Coding Instruction

Information	Card Columns
Cost center node.	11-13
Blank.	14-17
Lab. type number (3 lab. types per card).	18-19
Number of labs. available (Maximum of 6 lab. sizes per lab. type, i.e., 18 lab. sizes per card).	20-21
Number of labs. available - lab size 2, 3, 4, 5, and 6.	22-23, 24-25 26-27, 28-29, 30-31

Repeats: There are three sets of data per card. The next set of 6 lab. sizes for the 2nd lab. type continues in columns 34-35 and so on.

Explanation

The cost centers controlling instructional laboratories are specified in SPACE 14. The laboratory type numbers are defined in SPACE 06. The laboratory size ranges 1 through 6 are those given in SPACE 02. The available instructional laboratories input here will be compared to the requirements for instructional laboratories for each corresponding type and size for the cost center.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 3 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	V	L	SP	A	C	E	0	3	

Sys. Id.

77	78	79	80

AVAILABLE INSTRUCTIONAL SPECIAL LABORATORY SPACE

Cost Ctr. Code

11	12	13

11	12	13

Special Lab. Type No.

18	19

32	33

46	47

18	19

32	33

46	47

No. of Special Labs. Available by Size

1	2	3	4	5	6
20 21	22 23	24 25	26 27	28 29	30 31
34 35	36 37	38 39	40 41	42 43	44 45
48 49	50 51	52 53	54 55	56 57	58 59
20 21	22 23	24 25	26 27	28 29	30 31
34 35	36 37	38 39	40 41	42 43	44 45
48 49	50 51	52 53	54 55	56 57	58 59

Explanation:

(a) Code across the page, one special laboratory type per line, with the inventory of available laboratories of up to six sizes per type.

(b) Where the number of special laboratory types at a cost center exceeds three, use additional lines repeating the cost center code and data card information where called for. Begin each cost center inventory on a line that starts in column eleven.

(c) Use additional coding sheets of this type, as needed, to code the inventory of special laboratories at all cost centers.

(d) Columns 14-17 are not used.

Available Instructional Special Laboratory Space

Coding Instruction

Information	Card Columns
Cost center node.	11-13
Blank.	14-17
Special lab. type number (3 lab. types per card).	18-19
Number of special labs. available (max. of 6 lab. sizes per special lab. type, i.e. 18 lab. sizes per card).	20-21
Number of special labs. available - lab. size 2, 3, 4, 5, and 6.	22-23, 24-25, 26-27, 28-29, 30-31

Repeats: There are 3 sets of data per card. The next set of 6 special lab. sizes for the 2nd special lab. type continues in columns 32-33 and so on.

Explanation

For each cost center controlling instructional laboratories space, as specified in section 6.14, SPACE 14, we must indicate the number of labs. available of each type and size. The instructional special laboratory type number is specified in section 6.8, SPACE 08, and the laboratory sizes are specified in section 6.2, SPACE 02. The available instructional special laboratory as indicated in this command level will be matched to the corresponding requirements of each type and size for a particular cost center.

CAMPUS-MINNESOTA Input Document

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 2 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
A	V	I	S	P	A	C	E	0	4

Sys. Id.

77	78	79	80

AVAILABLE SPACE BY CATEGORY

Cost Ctr. Code (11-13)	Category Number (18-20)	No. of Sq.ft. Available (21-26)	Category Number (30-32)	No. of Sq.ft. Available (33-38)
	(42-44)	(45-50)	(54-56)	(57-62)
(11-13)	(18-20)	(21-26)	(30-32)	(33-38)
	(42-44)	(45-50)	(54-56)	(57-62)

Explanation:

(a) Code across the page, two space categories per line.

(b) Where the number of space categories at one cost center exceeds four, use additional lines repeating the cost center codes and data card information, where called for.

(c) Use additional coding sheets of this type, as needed, to code the inventory of space categories at all cost centers.

(d) Columns 14-17, 27-29, 39-41 and 51-53 are not used.

Available Space by Category

Coding Instruction

Information	Card Columns
Cost center node.	11-13
Category number (maximum 30 space categories).	18-20
Number of square feet available for this category.	21-26
2nd category number.	30-32
Number of square feet available for the 2nd category number.	33-38
3rd category number.	42-44
Number of square feet available for the 3rd category number.	45-50
4th category number.	54-56
Number of square feet available for the 4th category number.	57-62

(Columns 14-17, 27-29, 39-41, 51-53 are blank).

Explanation

The space categories here are those defined in SPACE 12. The requirements for each cost center are built up according to these space categories and matched to the available space for each corresponding category.

CAMPUS-[illegible] TA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	E	R	V	I	C	E		0	1

Sys. Id.

77	78	79	80

SERVICE DEPARTMENT CHARACTERISTICS

Service Dept. Code	Service Department Name	Cost Ctr. Level of Affil.	Cost Centers of Affiliation I	II	III	IV	V	Service Dept. Space Code
11 12	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	29	30 31 32	33 34 35	36 37 38	39 40 41	42 43 44	45 46 47

Explanation:

(a) Code across the page, one service department per line.
(b) Where service department is affiliated at more than one cost center level it must be redefined as a separate department at each level.
(c) Where service department is affiliated with all cost centers at one level, code only the level; leave cost centers of affiliation blank.
(d) Use additional coding sheets of this type, as needed, to code all service departments.

Service Department

Coding Instruction

Information	Card Columns
Service department code, maximum of 15 codes).	11-12
Service department name.	13-28
Service department cost center level code, (level at which service department is applicable).	29
Cost centers of affiliation (maximum of 5 cost centers where service department is applicable may be specifically mentioned; if none are specifically mentioned, service department presumed applicable at all cost centers).	30-32, 33-35 36-38, 39-41, 42-44
Service department space code (from SPACE 12)	45-47

Explanation

This command specifies the service departments by name and cost center(s) of affiliation. Service Departments can be defined generally for all cost centers or specific to a cost center at the discretion of the user. For example, a Student Affairs service department might be defined, under which would be included the student health service, athletic service, counselling, placement, common rooms, etc. However, if each or any one of these should be more aptly examined by itself, as may well be the case where these services vary significantly in cost or in value according to the philosophy of the college, it will be defined as a separate service department. Other areas of an institution that typically fall into the category of service department are the library, computer center, and cafeteria. It also might be useful to omit administrative staff from STAFF 05 and consider it as a service department, thereby creating the ability to attach to it such things as board rooms, administrative reception areas etc.

Any service department generating revenue must have a code less than 10.

Cover _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	E	R	V	I	C	E		0	2

Sys. Id.

77	78	79	80

SERVICE DEPARTMENT STAFF CHARACTERISTICS

Service Dept. Code (11-12)	Staff Code (13-14)	Staff Name (15-22)	Staff Salary (23-25)	Staff Office Planning Factor (26-28)	Prop'l Basis (29-30)	Quantity (31-35)	Prop'l Basis (36-37)	Quantity (38-42)	Prop'l Basis (43-44)	Quantity (45-49)

Explanation:

(a) Code across the page, one staff type per line
(b) Staff salary must be expressed in hundreds of dollars; office planning factor, in square feet.
(c) Quantity must be expressed to two decimal places. At least one proportional basis and quantity must be specified for each staff type.
(d) Use additional coding sheets of this type, as needed, to code all types of service department staff.

Service Staff

Coding Instruction

Information	Card Columns
Service department code (maximum of 15 codes).	11-12
Service staff type code (maximum of 50 codes).	13-14
Service staff name.	15-22
Service staff salary (in $100's/sim. pd.).	23-25
Staff office planning factor (sq. ft. per person).	26-28
Functional basis (basis for calculation of number of staff needed).	29-30
Quantity in proportion (amount of basis for which one staff required)	31-35
The 2nd functional basis (if any).	36-37
Quantity in proportion for the 2nd functional basis.	38-42
The 3rd functional basis (if any).	43-44
Quantity in proportion for the 3rd functional basis.	45-49

Explanation

Staff is specified in terms of type, salary, office space and numbers required. The number of each type of staff required can be expressed on an absolute basis, or more useful for planning purposes, as a function of some other factor at the college.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	E	R	V	I	C	E		0	3

Sys. Id.

77	78	79	80

SERVICE DEPARTMENT SPACE CHARACTERISTICS

Service Dept. Code (11-12)	Service Space Type Code (13-15)	Prop'l Basis (16-17)	Quantity (18-22)	Prop'l Basis (23-24)	Quantity (25-29)	Prop'l Basis (30-31)	Quantity (32-36)

Explanation:

(a) Code across the page, one space type per line.
(b) Quantity must be expressed to two decimal places. At least one proportional basis and quantity must be specified for each space type. Quantity is in square feet.
(c) Use additional coding sheets of this type, as needed, to code all service department types of space.

Service Space

Coding Instruction

Information	Card Columns
Service department code, maximum of 15 codes).	11-12
Service space type code.	13-15
Functional basis (basis for calculation of amount of space needed).	16-17
Quantity in proportion (amount of basis for which one square foot of space required).	18-22
2nd functional basis (if any).	23-24
Quantity in proportion for the 2nd functional basis.	25-29
3rd functional basis (if any).	30-31
Quantity in proportion for the 3rd functional basis.	32-36

Explanation

Service space, named by type SPACE 09 is considered in this command in terms of basis and quantity. Again the quantity required can be expressed absolutely or in some functional relationship. For example, the space needs of a college library might be broken down into stack space, carrel space and general reading area, the first based on square feet required for storage of 'N' volumes and the second two based on some reasonable per student provision, which is calculated on the basis of station size and percentage of student body that should be accommodated in the library at any one time. For example, if the station size of a carrel is 30 square feet and carrels should accomodate 100 of a 500 student body, the functional relationship of carrels to students would be expressed as 3000/500 = 6 square feet/student. On this basis, as the college enrollment grows, the carrel space requirements will grow commensurately. As this example demonstrates, college policy and philosophy are the primary source in the establishment of these kinds of planning factors.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
S	E	R	V	I	C	E		0	4

Sys. Id.

77	78	79	80

SERVICE DEPARTMENT EQUIPMENT CHARACTERISTICS

Service Dept. Code (11-12)	Equipment Type Code (13-14)	Equipment Name (15-22)	Annual Operating Cost (23-27)	Prop'l Basis (28-29)	Quantity (30-34)	Prop'l Basis (35-36)	Quantity (37-41)	Prop'l Basis (42-43)	Quantity (44-48)

Explanation:

(a) Code across the page, one equipment type per line.
(b) Annual operating cost is the real dollar cost of operating one unit of the specified equipment for one year.
(c) Quantity must be expressed to two decimal places. At least one proportional basis and quantity must be specified for each equipment type.
(d) Use additional coding sheets of this type, as needed, to code all types of service department equipment.

Service Equipment

Coding Instruction

Information	Card Columns
Service department code (maximum 15).	11-12
Service equipment type name.	15-22
Service equipment operating cost per unit (in $'s).	23-27
Functional basis (basis for calculation of number of units of equipment required).	28-29
Quantity in proportion (amount of basis for which one unit of equipment is required).	30-34
2nd functional basis.	35-36
Quantity in proportion for the 2nd functional basis (if any).	37-41
3rd functional basis (if any).	42-43
Quantity in proportion for the 3rd functional basis.	44-48

Explanation

The term equipment is used here rather loosely since it may include supplies, rental fees and other expenses accrued at a service department. Equipment requirements, like staff and space can be expressed either absolutely or in some functional relationship.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 5	Sheet___of___

Command Levels

1	2	3	4	5	6	7	8	9	10
R	E	V	E	N	U	E		0	1

Sys. Id.

77	78	79	80

CHARACTERISTICS OF REVENUE

Revenue Type (11 12)	Revenue Name (13 14 15 16 17 18 19 20)	Revenue Name (21 22 23 24 25 26 27 28)	Restricted or Unrestricted (29)	Prop'l Basis (30 31)	Revenue Type (32 33)	Revenue Name (34 35 36 37 38 39 40 41)	Revenue Name (42 43 44 45 46 47 48 49)	Restricted or Unrestricted (50)	Prop'l Basis (51 52)

Explanation:

(a) Code across the page, two revenue types per line.
(b) Restricted is indicated by 1, unrestricted by 0.

Characteristics of Revenue

Coding Instruction

Information	Card Columns
Revenue type (maximum 10).	11-12
Revenue name, e.g.,	13-28

Revenue Type	Revenue Name
1	Government (federal, provincial or municipal)
2	Endowment
3	Gifts and grants
4	Academic fees (tuition)
5	Sales and charges
6	Other, etc.

Revenue restricted or unrestricted — 29
code 1 - restricted revenue funds to cost center program.
code 0 - unrestricted revenue funds for whole institution.

Proportional basis, such as an absolute basis or function of the number-of-students basis. — 30-31

Repeats: There are 2 sets of information per card. The 2nd set continues in columns 32-33 for revenue type, columns 34-49 for revenue name, column 50 for revenue restricted or unrestricted, and columns 51-52 for proportional basis.

Explanation

Revenue coming into the college is enumerated by type at this command. This will include student fees, government grants, etc. To each type is attached a functional basis for receipt. Student fees will be expressed, for example, on a per student basis.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
R	E	V	E	N	U	E		0	2

Sys. Id.

77	78	79	80

REVENUE AT COST CENTERS

Cost Ctr. Level	Cost Ctr. Code	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value
11	12 13 14	15 16	17 18 19 20 21	22 23	24 25 26 27 28	29 30	31 32 33 34 35	36 37	38 39 40 41 42	43 44	45 46 47 48 49	50 51	52 53 54 55 56	57 58	59 60 61 62 63	64 65	66 67 68 69 70

Explanation:

(a) Code across the page, eight revenue types per line.
(b) Where revenue information applies to all cost centers at one level, leave the cost center code blank.
(c) Where the number of revenue types for one cost center exceeds eight, repeat the cost center level and code on all lines used.
(d) If the revenue type proportional basis is absolute, the value must be expressed in thousands of dollars; otherwise, in tens of dollars.
(e) Use additional coding sheets of this type, as needed, to code revenue at all cost centers.

Revenue at Cost Centers

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center node (leave blank to apply revenue to all nodes in level).	12-14
(Note that the following data are 8 sets per card)	
Revenue type from REVENUE 01	15-16
Revenue value (up to 8 revenue value per cost center node) in real dollars.	17-21

Repeats: The 2nd set of data continues in columns 22-23 for revenue type, columns 24-28 for revenue value. The 3rd set of data continues in columns 29-30 for revenue type, columns 31-35 for revenue value. The 4th set of data continues in columns 36-37 for revenue type, and so on.

Explanation

This command specifies the quantity of revenue accruing to cost centers.

This command and REVENUES 01, 03 and 04 are particularly useful for examining proposed formulae for formula financing. They also act as an inventory of available funds against which generated costs can be matched. On the basis of excess or deficit funds, various policy decisions that are particularly cost sensitive, can then be re-examined.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
R	E	V	E	N	U	E		0	3

Sys. Id.

77	78	79	80

REVENUE AT PROGRAMS

Program Level	Program Code	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value
11	12 13 14	15 16	17 18 19 20 21	22 23	24 25 26 27 28	29 30	31 32 33 34 35	36 37	38 39 40 41 42	43 44	45 46 47 48 49	50 51	52 53 54 55 56	57 58	59 60 61 62 63	64 65	66 67 68 69 70

Explanation:

(a) Code across the page, eight revenue types per line.
(b) Where revenue information applies to all programs at one level, leave the program code blank.
(c) Where the number of revenue types for one program exceeds eight, repeat the program level and code on all lines used.
(d) If the revenue type proportional basis is absolute, the value must be expressed in thousands of dollars; otherwise, in tens of dollars.
(e) Use additional coding sheets of this type, as needed, to code revenue for all programs.

Revenue at Programs

Coding Instruction

Information	Card Columns
Program level.	11
Program node (leave blank to apply revenue to all programs in level).	12-14
(Note that the following data are 8 sets per card).	
Revenue type from REVENUE 01.	15-16
Revenue value (up to 8 values per program per card) in real dollars.	17-21

Repeats: The 2nd set of data continues in columns 22-23 for revenue type, columns 24-28 for revenue value. The 3rd set of data continues in columns 29-30 for revenue type, and so on.

Explanation

This command level specifies the quantity of revenue accruing to programs.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
R	E	V	E	N	U	E		0	4

Sys. Id.

77	78	79	80

REVENUE AT THE SERVICE DEPARTMENTS

Service Dept. Code	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value	Revenue Type	Revenue Value
11 12	13 14	15 16 17 18 19	20 21	22 23 24 25 26	27 28	29 30 31 32 33	34 35	36 37 38 39 40	41 42	43 44 45 46 47	48 49	30 51 52 53 54	55 56	57 58 59 60 61	62 63	64 65 66 67 68

Explanation:

(a) Code across the page, eight revenue types per line.
(b) Where the number of revenue type for one service department exceeds eight, repeat the service department code on all lines used.
(c) If the revenue type proportional basis is absolute, the value must be expressed in thousands of dollars; otherwise, in tens of dollars.
(d) Use additional coding sheets of this type, as needed, to code revenue for all service departments.

Revenue at Service Departments

Coding Instruction

Information	Card Columns
Service department node (up to 15 service departments).	11-12
(Note that the following data are 8 sets per card)	
Revenue type from REVENUE 01.	13-14
Revenue value, in real dollars.	15-19

Repeats: The 2nd set of data continues in columns 20-21 for revenue type, columns 22-26 for revenue value. The 3rd set of data continues in columns 27-28 for revenue type, columns 29-33 for revenue value. The 4th set of data continues in columns 34-35 for revenue type, and so on.

Explanation

This command level specifies the quantity of revenue accruing to service departments.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 8	Sheet___of___

Command Levels

1	2	3	4	5	6	7	8	9	10
E	Q	U	I	P	M	E	N	D	1

Sys. Id.

77	78	79	80

TEACHING EQUIPMENT RESOURCE CHARACTERISTICS

Equip. Type Code (11-12)	Equipment Type Name (13-28)	Avail-ability (29-30)	Operating Cost (31-35)	Equip. Type Code (36-37)	Equipment Type Name (38-53)	Avail-ability (54-55)	Operating Cost (56-60)

Explanation:

(a) Code across the page, two equipment types per line.
(b) Availability is expressed in hours per week per equipment unit.
(c) Operating cost is expressed in terms of the annual operating cost per equipment unit,

Equipment Resource Characteristics

Coding Instruction

Information	Card Columns
Equipment type code (maximum of 50 codes).	11-12
Equipment type name, e.g., typewriter.	13-28
Availability in hours per week per equipment unit.	29-30
Annual operating cost per equipment unit, no decimal place dollar value per simulation period.	31-35

Repeats: There are 2 sets of information per card. The 2nd set continues in columns 36-37 for equipment type code, columns 38-53 for equipment type name, columns 54-55 for availability in hours per week per equipment unit, and columns 56-60 for annual operating cost per equipment unit.

Explanation

This command level examines equipment that is directly related to activities, in terms of annual operating cost and availability expressed in hours per week. The equipment types expressed here appear as equipment sub-types in the resource combinations defined in ACTIVITY 05.

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 2	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
M	I	S	C	E	L	L	A	0	1

Sys. Id.

77	78	79	80

MISCELLANEOUS RESOURCE CHARACTERISTICS

Misc. Type Code (11-12)	Type Name (13-28)	Proportional Basis (29-30)	Misc. Type Code (11-12)	Type Name (13-28)	Proportional Basis (29-30)

Explanation:

(a) Code across the page, two types per sheet of miscellaneous resources that are attached to cost centers; not activities.

(b) Use additional sheets of this type, as needed, to code all miscellaneous resource types.

Miscellaneous Resource Characteristics

Coding Instruction

Information	Card columns
Miscellaneous type code (maximum of 15 codes).	11-12
Miscellaneous type name, e.g., supplies.	13-28
Miscellaneous functional basis.	29-30

Repeats: There are 2 sets of information per card. The 2nd set continues in columns 31-32 for miscellaneous type code, columns 33-48 for miscellaneous type name and columns 49-50 for miscellaneous functional basis.

Explanation

All costs not accounted for under level 02 commands, STAFF, SPACE, SERVICE and EQUIPMENT, can be categorized under miscellaneous costs. These can be generally grouped or specified in great detail. They are most usefully handled by types that reflect the budget reporting method at the college. Examples are travel and conference expenses, fringe benefits, telephone, promotion etc. Again, miscellaneous resources are expressed as a function of some other factor or as an absolute value.

CAMPUS-MINNESOTA Input Document

Coder _____	Session ____ Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 10 Decimal points are not to be keypunched	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
M	I	S	C	E	L	L	A	0	2

Sys. Id.

77	78	79	80

MISCELLANEOUS RESOURCES BY COST CENTER

Cost Ctr. Level	Cost Ctr. Code	Misc. Type Code	Quantity	Misc. Type Code	Quantity	Misc. Type Code	Quantity	Misc. Type Code	Quantity	Misc. Type Code	Quantity	Misc. Type Code	Quantity	Misc. Type Code	Quantity	Misc. Type Code	Quantity
11	12 13 14	15 16	17 18 19 20 21	22 23	24 25 26 27 28	29 30	31 32 33 34 35	36 37	38 39 40 41 42	43 44	45 46 47 48 49	50 51	52 53 54 55 56	57 58	59 60 61 62 63	64 65	66 67 68 69 70

Explanation:

(a) Code across the page, eight miscellaneous resources per line.
(b) If the number of resources at each cost center exceeds eight, repeat the cost center level and code at the beginning of each line used.
(c) Where miscellaneous resources apply to all cost centers at one level, code only the cost center level.

(d) Quantity must be expressed to two decimal places.
(e) Use additional coding sheets of this type, as needed, to code miscellaneous resources at all cost centers.

Miscellaneous Resources by Cost Center

Coding Instruction

Information	Card Columns
Cost center level.	11
Cost center node (if node is blank then apply miscellaneous resource to all nodes in that level).	12-14
(Note that the following data are 8 sets per card)	
Miscellaneous resource type code from MISCELLA 02, use up to 10 types of miscellaneous resource type codes at one cost center.	15-16
Miscellaneous resource quantity in proportion (dollar quantity in proportion).	17-21

Repeats: The 2nd set continues in columns 22-23 for miscellaneous resource type code, columns 24-28 for miscellaneous resource quantity in proportion. The 3rd set continues in columns 29-30 for miscellaneous resource type code, and so on.

Explanation

In this command level miscellaneous resources are broken down into quantity requirements by cost center.

Exhibit 1

Cost Center Structure
for a School of Business Administration

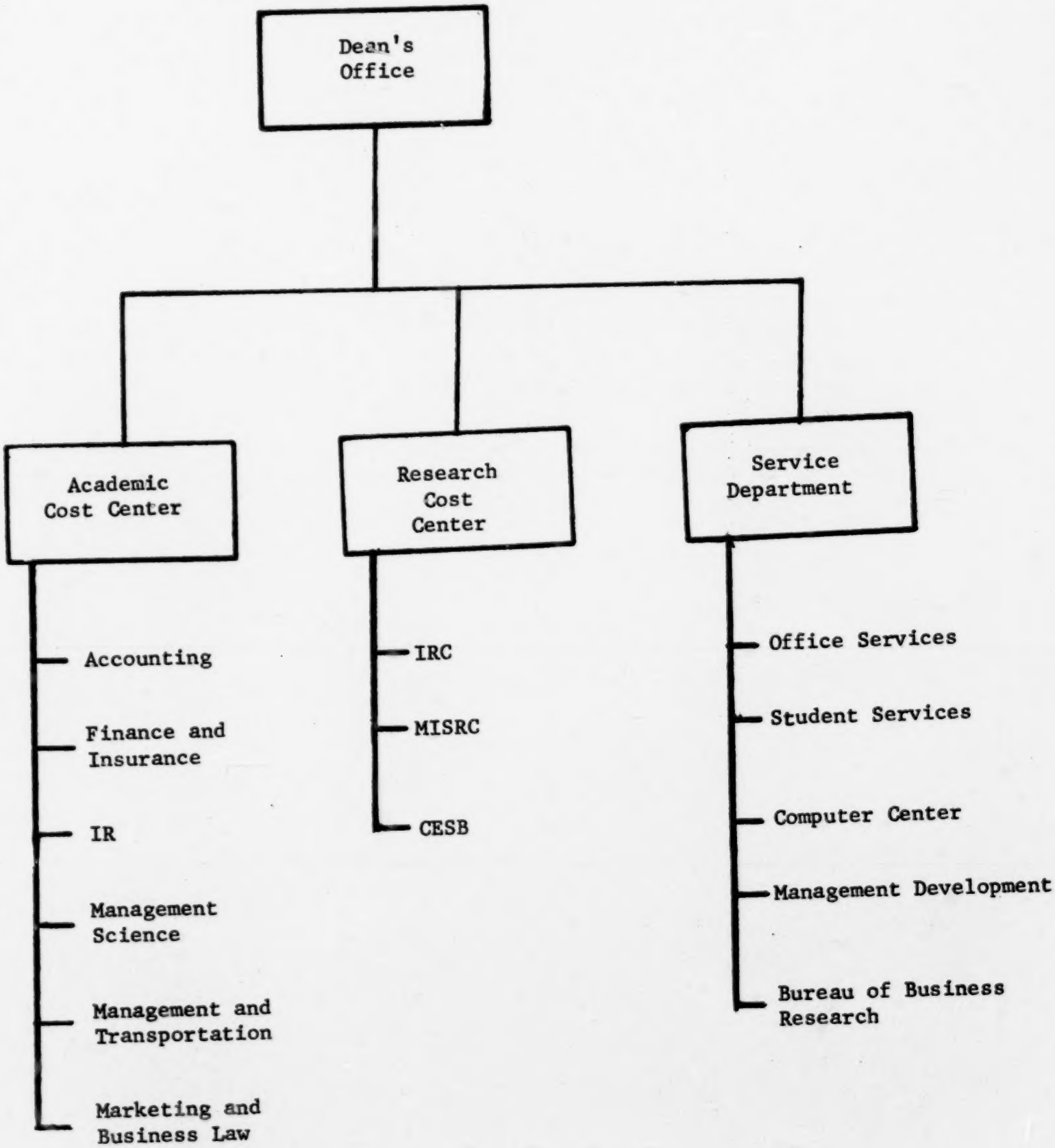

Exhibit 2

A Program Structure
for a
School of Business Administration

PRIMARY

1.0 INSTRUCTION

1.1 Undergraduate

BSB Accting
BSB Regular

1.2 Graduate

Master of Business Administration (Day)
Executive Master of Business Administration (Evening)
Master of Arts - Industrial Relations
Ph.D. - (10 program elements)[1/]
Master of Science - (10 program elements)[1/]

2.0 RESEARCH

2.1 Organized Research

Center for Experimental Study of Business (CESB)
Industrial Relations Center (IRC)
Management Information Systems Research Center (MISRC)

2.2 Department Research

Summer Research
Department Research

3.0 PUBLIC SERVICE

Continuing Business Education
Bureau of Business Research
Faculty Public Service

SUPPORT

4.0 ACADEMIC SUPPORT

Computer Center
Industrial Relations Library
Business Reference Library
Department Administration and Committees
Professional Development

5.0 STUDENT SUPPORT

Pre-Business Counseling
Graduate Studies
Placement
Student Support - Faculty

6.0 INSTITUTION SUPPORT

College Administration
Administrative Services
Committees - College Wide

[1/] Each element is a degree major: Accounting, Finance, Industrial Relations, Management, Management Information Systems, Marketing, Production, Quantitative Analysis, Insurance, and Transportation.

ACTIVITY CHARACTERISTICS

ACTIVITY TYPES

CODE	NAME
1	LECT SEM
2	LAB QUIZ
3	ACTIVITY
4	LECT-LAB
5	IND STDY

SPECIALTY TYPES

CODE	NAME
1	AMER HUM
2	ANTHRO
3	ART
4	BIOLOGY
5	BUS ADMN
6	BUS ED
7	CHEMIST
8	CPTR SCI
9	ECONOMIC
10	EDUCATIN
11	ED MEDIA
12	ENGLISH
13	FRENCH
14	GEOGRAPH
15	GEOLOGY
16	GERMAN
17	HEALTH
18	HISTORY
19	IND ED
20	LIB SCI
21	MASS COM
22	MATH
23	MUSIC
24	PHIL
25	PHY ED
26	PHYSICS
27	POLI SCI
28	PSYCH
29	RECREATN
30	RUSSIAN
31	SCIENCE
32	SOCIOLOG
33	SPANISH
34	SPEECH
35	HONORS

Exhibit 3

ACTIVITY CHARACTERISTICS

RESOURCE COMBINATIONS

RESOURCE COMBINATION CODE	RESOURCE NUMBER	RESOURCE CODE	TYPE NAME	RESOURCE CODE	SUBTYPE NAME
1					
	1	1	ACADEMIC STAFF	2	FULL - TIME STAF
	2	4	SPACE CLASSROOMS	1	LECTURE-SEMINAR
2					
	1	1	ACADEMIC STAFF	2	FULL - TIME STAF
	2	5	SPACE LABORATORY	1	LABORATORY
3					
	1	1	ACADEMIC STAFF	2	FULL - TIME STAF
	2	4	SPACE CLASSROOMS	2	PHY ED ACTIVITY
4					
	1	1	ACADEMIC STAFF	2	FULL - TIME STAF
	2	4	SPACE CLASSROOMS	1	LECTURE-SEMINAR
	3	5	SPACE LABORATORY	1	LABORATORY
5					
	1	1	ACADEMIC STAFF	2	FULL - TIME STAF

Exhibit 4

Exhibit 5

Functional Basis

(Sometimes referred to as Proportional Basis)

"Functional basis" and "quantity in proportion" may be thought of as the units and numberical value, respectively, of the coefficients of a linear estimation equation. For example, if a department requires one secretary regardless of size, plus one secretary for each 12 faculty, plus one secretary for each 100 graduate students affiliated with the department, the estimation equation for the number of secretaries is:

$$y = a_0 + a_1x_1 + a_2x_2$$

where:

- y = number of secretaries required
- a_0 = 1 secretary regardless of department size [functional basis code number 1].
- a_1 = 1/12 secretary per faculty [quantity in proportion = 1/12].
- x_1 = number of faculty at the cost center [functional basis code number 8].
- a_2 = 1/100 secretary per student [quantity in proportion - 1/100].
- x_2 = number of students at the cost center [functional basis code 42].

Codes and definitions for the entire set of 49 functional bases are included in this exhibit. These functional bases [referred to as NBASIS () in the computer code] are simply counters in the simulation that keep track of their respective units. The model is currently dimensioned so that the functional bases can be extended to 75.

Exhibit 5

FUNCTIONAL BASES FOR THE CALCULATION OF INDIRECT RESOURCES AT A COST CENTER[1/]

Code Number	Description
1.	Absolute - value 1.0
2.	Affiliated students
3.	Affiliated enrollees
4.	Enrollee load
5.	Aggregate affiliated students
6.	Aggregate affiliated enrollees
7.	Aggregate enrollee load
8.	Number of academic staff
9.	Number of academic support staff
10.	Number of non-academic staff
11.	Total staff at the cost center
12.	Aggregate number of academic staff
13.	Aggregate number of academic support staff
14.	Aggregate number of non-academic staff
15.	Aggregate total staff
16.	Number of affiliated programs
17.	Aggregate number of affiliated programs
18.	Classroom space
19.	Laboratory space
20.	Total space
21.	Aggregate classroom space
22.	Aggregate laboratory space
23.	Aggregate total space

1/ Aggregate = Total at a cost center considering all the affiliated cost centers below the referenced cost center.

Exhibit 5 (continued)

Code Number	Description
24.	Operating costs
25.	Aggregate operating costs
26.	Number of directly affiliated cost centers
27.	Absolute - Value 0.1
28.	Absolute - Value 0.01
29.	Absolute - Value 10.0
30.	Absolute - Value 100.0
31.	Absolute - Value 1000.0
32.	Total academic staff salaries
33.	Total academic support staff salaries
34.	Total non-academic staff salaries
35.	Total full time academic staff hired
36.	Total staff salaries
37.	Aggregate academic staff salaries
38.	Aggregate academic support staff salaries
39.	Aggregate non-academic staff salaries
40.	Aggregate total salaries
41.	
42.	Affiliated students in 100's
43.	Affiliated enrollees in 100's
44.	Enrollee load in 100's
45.	Aggregate affiliated students in 100's
46.	Aggregate affiliated enrollees in 100's
47.	Aggregate enrollee load in 100's
48.	Number of stations in a room
49.	Number of square feet in a room

5.0 OUTPUT REPORT SPECIFICATIONS

There are three general report categories: (1) Input data reports, (2) Cost center reports and (3) Overtime reports. The input data reports print out the input data described in the preceeding section in a convenient format for editing. The cost center reports print out the data generated by the model for each period that is simulated. Overtime reports print out an average of the quarterly data for each simulation session up to ten simulation sessions.

An index of the specific report commands and report numbers follows.

Level 1 Command INPUT

Level 2	Level 3	
INREPORT	01	Input Report Control
	02	Comments
OUTREPORT	01	Output Report Control - Cost Centers
	02	Output Report Control - Programs
	03	Output Report Control - Revenue
OTIME	01	Cost Center Output Reports - Overtime.

CAMPUS-MINNESOTA Report Control Document

Coder _____	Run Number ____	Punching Instructions: Lines/Card 1 Cards/Sheet 9	Sheet___of___

Sys. Id.

77	78	79	80

Command Levels

1	2	3	4	5	6	7	8	9	10
I	N	R	E	P	O	R	T	0	1

INPUT REPORT CONTROL

Input Type of Report	Report Frequency Control	Report Sub-Type Control	Input Type of Report	Report Frequency Control	Report Sub-Type Control	Input Type of Report	Report Frequency Control	Report Sub-Type Control
11	12	13 14 15 16 17 18 19	20	21	22 23 24 25 26 27 28	29	30	31 32 33 34 35 36 37

Input Report Control

Coding Instruction

Information	Card Columns
Type of input report must be indicated if any or all of the report of that type are desired. (Indicates major type of report for which input report is desired. This indicator may take on any values from 1-9.) See input data report index for titles and codes of major types.	11
Report frequency control (as an indicator to specify the desired frequency for the input report of that major type. code 1 - indicates reports are desired for this session only 2 - indicates a report is desired for this session and for all sessions in which 'update' data is read in. '0'- indicates no reports will be printed for all those sub-types which indicated '1'.	12
Report sub-type controls, controls whether or not an input report is desired for that sub-type for sub-type indicator 1, 2, 3, 4, 5, 6 and 7 respectively. (See input data report index for subtypes and descriptions.) - If all sub-type indicators are '0' (or blank), then all sub-type reports will be printed. - If any of the 7 indicators are "0' (or blank), these report sub-types will not be printed. - If the sub-type indicator is '1' and the report frequency control is '1' or '2' then this sub-type of report will be printed. - If the sub-type indicator is '1' and the report frequency control is '0' then this sub-type of report will not be printed.	13, 14, 15, 16, 17, 18, 19

Repeats: There are 3 sets of information per card. The 2nd set continues in column 20 for input type of report, column 21 for report frequency control, and columns 22, 23, 24, 25, 26, 27 and 28 for report sub-type controls. The

3rd set continues in column 29 for input type of report, column 30 for report frequency control, and columns 31, 32, 33, 34, 35, 36 and 37 for report sub-type controls.

Explanation

Input report control cards must appear in the deck in order to specify Input Data Reports. If no input report control card appears, no input reports will be printed.

Each control card may specify 3 sets of controls. Each set of controls consists of 3 types of information: Type of Report Control, Report Frequency control and Report Sub-Type Control.

There is one generalized feature. It is possible to specify that the report frequency control indicated should apply to all sub-types of reports for a major report type. This may be done by leaving all sub-type controls blank.

Note that a report sub-type may be specified even though no such report exists. Thus, there may be only 6 sub-types of reports, for example, major report type 2, but a 7th sub-type may still be requested under this generalized feature. However, since no 7th report exists, the request for it will ultimately be ignored, and no 7th report will be printed.

[illegible] Report Control Document

Coder _____	Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 3	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
I	N	R	E	P	O	R	T	0	2

Sys. Id.

77	78	79	80

INPUT COMMENT

Experiment Description

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70

Sequence Check

71

Input Comments

Coding Instruction

Information	Card Columns
Comments on type of CAMPUS run or experiment	11-70
Sequence number (i.e., 1-2-3, this must not be left blank even if only one card is used).	71

There are 3 cards for comments. The 2nd and 3rd cards also start from column 11 to 70, and column 71 is for the sequence number of the card (2-indicates the 2nd card, 3-indicates the 3rd card.)

Explanation

There are 3 cards available for comments on the type of CAMPUS run or experiment. The 3 comment cards are printed on the first input data report, and also on the title page which precedes the cost center reports. The first comment card (only) also appears as part of the title information on each cost center report. It is a good policy to use this card for the data and a name identifier to distinguish a specific run from other runs. This card should be changed for every run.

CAMPUS-MINNESOTA Report Control Document

Coder _	Run Number _____	Punching Instructions: Lines/Card 2 Cards/Sheet 3	Sheet___of___

Command Levels

1	2	3	4	5	6	7	8	9	10
O	U	T	P	E	P	O	R	0	1

Sys. Id.

77	78	79	80

OUTPUT REPORT CONTROL

Cost Ctr. Level Code	Output Report Type	Output Report Sub-type							
11	12 13 14	15	16	17	18	19	20		
41	42 43 44	45	46	47	48	49	50		
11	12 13 14	15	16	17	18	19	20		
41	42 43 44	45	46	47	48	49	50		
11	12 13 14	15	16	17	18	19	20		
41	42 43 44	45	46	47	48	49	50		

Cost Ctr. Level Code	Output Report Type	Output Report Sub-type							
21	22 23 24	25	26	27	28	29	30		
51	52 53 54	55	56	57	58	59	60		
21	22 23 24	25	26	27	28	29	30		
51	52 53 54	55	56	57	58	59	60		
21	22 23 24	25	26	27	28	29	30		
51	52 53 54	55	56	57	58	59	60		

Cost Ctr. Level Code	Output Report Type	Output Report Sub-type							
31	32 33 34	35	36	37	38	39	40		
61	62 63 64	65	66	67	68	69	70		
31	32 33 34	35	36	37	38	39	40		
61	62 63 64	65	66	67	68	69	70		
31	32 33 34	35	36	37	38	39	40		
61	62 63 64	65	66	67	68	69	70		

Output Report Control Cost Centers

Coding Instruction

Information	Card Columns
Cost center level, the value indicated here is a cost center level for which reports are desired.	11
Cost center node, the value indicated here is the cost center node for which reports are desired. If cost center node is left blank, then the reports specified will be printed for all nodes at that level.	12
Output Report type. The value indicated here is the output report type for which the specified sub-type reports are desired. Value range 1-7 (there are 7 major report types. See cost center output report index for titles and codes of major types.)	15
Output report sub-type control indicators are 1, 2, 3, 4, and 5 respectively. Each of the 5 sub-type controls is used to indicate whether or not an output report is desired for that sub-type. (See cost center output report index for a description of sub-types).	16, 17, 18, 19, 20

- If all sub-type indicators are '0' (or blank), than all sub-type reports will be printed.
- If all sub-type indicators are '2' then no sub-type reports will be printed.
- If the sub-type indicators are not all zeros, then only those sub-type reports where the indicators have been set to '1' will be printed.

Repeats: There are 6 sets of information per card. The 2nd set continues in column 21 for cost center level, columns 22-24 for cost center node, and columns 25, 26, 27, 28 and 29 for output report sub-type control indicators. The 3rd set continues in column 30 for cost center level, column 31-33 for cost center node and columns 34, 35, 36, 37 and 38 for output report sub-type control indicators. And the 4th set continues in column 39, and so on.

Explanation

Output report control cards must appear in the deck in order to specify cost center output reports that are desired. If no output report control cards appear, no cost center reports will be printed.

Each control card may specify 6 sets of controls. Each set of controls consists of 4 types of information: 1) cost center level; 2) cost center node; 3) output report type; 4) output report sub-types.

There are 3 generalized features:

1) It is possible to specify reports for all nodes at a level by indicating the level only;
2) It is possible to specify all major report types by leaving the Output Report Type blank.
3) It is possible to specify all sub-types of reports (for the specified or all major report types) by leaving all the sub-type indicators blanks.

CAMPUS-MINNESOTA Report Control Document

Coder _____	Run Number _____	Punching Instructions: Lines/Card 2 Cards/Sheet 1	Sheet ___ of ___

Command Levels

1	2	3	4	5	6	7	8	9	10
O	U	T	R	L	P	O	R	0	2

Sys. Id.

77	78	79	80

OUTPUT REPORT CONTROL

Program Level	Program Code	Output Report Type	Output Report Subtype				
11	12 13 14	15	16	17	18	19	20
41	42 43 44	45	46	47	48	49	50
11	12 13 14	15	16	17	18	19	20
41	42 43 44	45	46	47	48	49	50
11	12 13 14	15	16	17	18	19	20
41	42 43 44	45	46	47	48	49	50

Program Level	Program Code	Output Report Type	Output Report Subtype				
21	22 23 24	25	26	27	28	29	30
51	52 53 54	55	56	57	58	59	60
21	22 23 24	25	26	27	28	29	30
51	52 53 54	55	56	57	58	59	60
21	22 23 24	25	26	27	28	29	30
51	52 53 54	55	56	57	58	59	60

Program Level	Program Code	Output Report Type	Output Report Subtype				
31	32 33 34	35	36	37	38	39	40
61	62 63 64	65	66	67	68	69	70
31	32 33 34	35	36	37	38	39	40
61	62 63 64	65	66	67	68	69	70
31	32 33 34	35	36	37	38	39	40
61	62 63 64	65	66	67	68	69	70

5.2.2 OUTREPOR 02

Not used in CAMPUS-M

See Project PRIME Report No. 8 for Program Costing

CAMPUS-MINNESOTA INPUT DOCUMENT

Coder _____	Session _____ Run Number _____	Punching Instructions: Lines/Card 1 Cards/Sheet 10	Sheet ___ of ___

Sys. Id.

Command Levels

1	2	3	4	5	6	7	8	9	10
O	T	I	M	E				0	1

COST CENTER OUTPUT REPORTS OVER TIME

Cost Center

Level: 11 11 11 11 11 11 11 11 11 11

Code: 12 13 14 12 13 14 12 13 14 12 13 14 12 13 14 12 13 14 12 13 14 12 13 14 12 13 14 12 13 14

Over Time Report Types

15 15 15 15 15 15 15 15 15 15

16 16 16 16 16 16 16 16 16 16

17 17 17 17 17 17 17 17 17 17

18 18 18 18 18 18 18 18 18 18

19 19 19 19 19 19 19 19 19 19

Cost Center Output Reports Over Time

Coding Instruction

Information	Card Columns
Cost center level, always code cost center level.	11
Cost center node, code the cost center node for overtime reports that are desired. Leave 'blank' if all cost center codes, at this level are desired.	12-14
Overtime report types. 5 types of cost center overtime reports, e.g., Code: - Only those report type reports where the report types have been set to '1' will be printed. - If all report types are '2' no reports will be printed.	15, 16, 17, 18, 19

Repeats: There are 6 sets of information per card. The 2nd set continues in column 20 for cost center level, columns 21-23 for cost center node and columns 24, 25, 26, 27 and 28 for overtime report types. The 3rd set continues in column 29 for cost center level, columns 30-32 for cost center node, and columns 33, 34, 35, 36 and 37 for overtime report types. The 4th set continues in columns 38 and so on.

Explanation

Each control card may specify 6 sets of controls. Each set of controls consists of 3 types of information:

1) Cost center level;
2) Cost center node;
3) Over Time report types.

There are 2 generalized features:

1) It is possible to specify reports for <u>all</u> cost centers at a level by indicating the level only (leave cost center node blank).
2) It is possible to specify <u>all</u> over time reports for a cost center by leaving <u>all</u> the over time report types blank.

INPUT DATA REPORT
INDEX

Major Type	Sub Type	Title and Contents
1.0		PROGRAM STRUCTURES AND DEPARTMENTS
	1.1	SIMULATION CHARACTERISTICS: Institution name, Simulation periods per session, Length of simulation period, and Comments on this run.
	1.2	COST CENTERS - LEVEL/NODE STRUCTURE: The levels, nodes and nodes of affiliation of the cost centers reflecting the flow of funds and resources.
	1.3	PROGRAMS - LEVEL/NODE STRUCTURE: The levels, nodes and nodes of affiliation of the programs, reflecting the flow of teaching resources.
	1.4	AFFILIATION OF PROGRAM NODES TO COST CENTER NODES: Program nodes affiliated to cost center nodes reflecting the flow of funds and resources to the programs.
2.0		ACTIVITIES
	2.1	ACTIVITY CHARACTERISTICS: Activity and specialty types.
	2.2	ACTIVITY CHARACTERISTICS-SCHEDULE AND SECTION SIZE RANGES: Schedule range codes - day or night classes, hours per meeting, meetings per week, duration in weeks; section size range codes - minimum, desired, and maximum section sizes.
	2.3	ACTIVITY CHARACTERISTICS-RESOURCE COMBINATION Resource combination codes, and three possible resources, types and categories.
	2.4	ACTIVITIES: Activity numbers, names, cost center node of affiliation, specialty and activity type codes, success factors, credit values, schedule and section size range codes, and resource combination codes.
	2.5	EXCEPTION ACTIVITIES: Similar to 2.4 except dealing with exception activities. Schedule and section size range codes and resource combination codes are not present. Day or night code, hours per meeting, meetings per week, durations and section sizes (minimum, desired, maximum) are added.
	2.6	EXCEPTION ACTIVITY RESOURCES: Exception activities, names, resource requirements (types and categories), cost centers of affiliation, functional codes, quantitites in proportion an day-night codes, hours per meeting, meetings per week and durations for the resource schedule.
3.0		PROGRAMS AND STUDENTS
	3.1	PROGRAM CURRICULA AND ACTIVITY PARTICIPATION: Program nodes, names, credit ranges (academic years), credits per credit ranges; program curriculum codes and activity number codes and participation rates that constitute each curriculum.
	3.2	INITIAL DISTRIBUTION OF STUDENTS INTO PROGRAMS: For each simulation period there is the total number of new entrants with no academic credit entering all programs, folloed by a breakdown by program node and credit range (academic year) of the number of new students entering without and with academic credit.
	3.3	STUDENT TRANSITIONS: For each program node and academic year,

possible destinations (other program nodes and credit ranges) and the transition rates; also a test if enrolment was updated prior to simulation period.

3.4 STUDENT CREDIT LOAD: Student credit loads and percent of students taking each credit load by program node and simulation period.

4.0 STAFF

4.1 ACADEMIC STAFF CHARACTERISTICS: Academic staff ranks, salaries, staffing units, office space, and time profiles for all cost centers ('COMMON'), and for particular cost centers ('EXCEPTIONS').

4.2 ACADEMIC STAFF ACTIVITY DUTIES: Activity type names and staffing units credit per contact hour for all cost centers ('COMMON') and particular ('EXCEPTION') cost centers.

4.3 ACADEMIC STAFF NON-ACTIVITY DUTIES: Non-teaching duties rank codes and names required, staffing units, functional bases and quantities in proportion for all cost centers ('COMMON') and for particular ('EXCEPTION') cost centers.

4.4 ACADEMIC STAFF INVENTORY, TRANSITIONS, AND HIRING CRITERIA: Staff rank codes, names, initial inventory, transitions, hiring criteria and per cent distribution by cost center node.

4.5 ACADEMIC STAFF OPTIMIZATION AND UPDATE POLICIES: General staffing and optimization policies, and transition policy by simulation period and by cost center.

4.6 ACADEMIC SUPPORT STAFF: Support staff codes, names, average salary, contact hours available, and office space.

4.7 NON-ACADEMIC STAFF: Non-academic staff type codes, names, average salaries, office space, functional bases and quantities in proportion by cost center level and node.

5.0 SPACE

5.1 AVAILABLE CLASSROOM SPACE BY COST CENTER: Classroom types available by size (stations) by cost center node.

5.2 AVAILABLE INSTRUCTIONAL LABORATORY SPACE BY COST CENTER: Instructional laboratory types available by size (stations), by cost center nodes.

5.3 AVAILABLE INSTRUCTIONAL SPECIAL LABORATORY SPACE BY COST CENTER: Special laboratory types available by size (stations) by cost center nodes.

5.4 AVAILABLE COST CENTER SPACE BY SPACE CATEGORY: Space category numbers and square feet and stations available, by cost center node.

5.5 ROOM SIZES AND PLANNING FACTORS (SQUARE FEET PER STATION): Station sizes for classrooms and instructional laboratories with the type and number of each. Equipment size codes and number of each size for instructional special laboratories.

5.6 CLASSROOM AND INSTRUCTIONAL LABORATORY CHARACTERISTICS BY TYPE: Classroom and instructional laboratory inventory room type codes, names, maintenance costs, and service characteristic codes.

5.7 INSTRUCTIONAL SPECIAL LABORATORY CHARACTERISTICS BY TYPE: Inventory room type codes, numbers, names, maintenance costs per square foot, service characteristic codes and equipment size codes for instructional special laboratories.

Input Data Report Index
Continued

6.0 SPACE

6.1 SERVICE SPACE CHARACTERISTICS BY TYPE: Inventory codes, names, type numbers, maintenance cost per square foot and service characteristic codes for service space.

6.2 COST CENTER TEACHING WEEKS AND SPACE UTILIZATIONS: Laboratory and classroom teaching hours per week and utilization by cost center level and node.

6.3 SERVICE CHARACTERISTIC CODES: Names and codes of service resources.

6.4 CONSTRUCTION AND MAINTENANCE COSTS BY SPACE CATEGORY: Inventory space category numbers, codes, names, and costs per square foot for construction and maintenance.

6.5 MISCELLANEOUS SPACE INPUT: Classroom manipulation required by type and size. Instructional laboratory manipulation required by type and size (both yes or no). Net/gross space percentage, net to gross construction cost ($/sq. ft.), Office Maintenance cost ($sq. ft.) and office service characteristic codes.

6.6 TEACHING SPACE CONTROL CENTERS: Cost center code and name, space control center for classrooms, instructional laboratories and special laboratories.

7.0 SERVICE DEPARTMENTS

7.1 SERVICE DEPARTMENTS: Service department codes, names, and cost center nodes of affiliation.

7.2 SERVICE STAFF: Service staff codes, names, salaries, space planning factors, functional bases, and quantities in proportion, by service department.

7.3 SERVICE SPACE: Service space type codes, names, functional bases and quantities in proportion, by service department.

7.4 SERVICE EQUIPMENT: Service equipment codes, names, operating costs per unit, functional bases and quantities in proportion, by service department.

8.0 REVENUE

8.1 CHARACTERISTICS OF REVENUE: Revenue types and sources and functional bases; unrestricted or restricted.

8.2 REVENUE AT COST CENTERS: Revenue types, names, functional bases, value (restricted or not) by cost center nodes and levels.

8.3 REVENUE AT PROGRAMS: Same as 8.2, except by program nodes and levels.

8.4 REVENUE AT SERVICE DEPARTMENTS: Same as 8.2 and 8.3, except by service departments.

9.0 MISCELL RESOURCES

9.1 EQUIPMENT RESOURCE CHARACTERISTICS: Equipment type codes, names, hours available per week and annual operating costs.

9.2 MISCELLANEOUS RESOURCE CHARACTERISTICS: Miscellaneous resource type codes, names, and functional bases.

9.3 MISCELLANEOUS RESOURCES BY COST CENTER: Miscellaneous resource type codes, names, and quantities in proportion by cost center nodes and levels.

COST CENTER OUTPUT REPORT
INDEX

Major Type	Sub Type	Title and Contents
1.0		STUDENTS AND ENROLLEES
	1.1	DIRECT ENROLLEE LOADS BY PROGRAM: A breakdown of student and enrollee loads in programs affiliated to the cost center.
	1.2	SUMMARY AND AGGREGATION OF ENROLLEE LOADS FROM LOWER LEVELS: Gives aggregate enrollee loads from directly affiliated cost centers and total accumulated enrollee load at the cost center.
2.0		STAFF
	2.1	STAFF REPORT ON ACTIVITY CONTACT HOURS PER WEEK: Number and type of contact hours required by activity.
	2.2	ACADEMIC STAFF INVENTORY BY RANK: Shows the number of staff before and after promotion and the number of staff hired to meet requirements.
	2.3	DETAILED BREAKDOWN OF DIRECT ACTIVITY AND NON-ACTIVITY LOAD AMONGST ACADEMIC STAFF: Gives type of load, and the number and cost of staff required to meet demand.
	2.4	ACADEMIC SUPPORT STAFF NON-ACADEMIC SUPPORT STAFF: States number and cost of staff requirements.
	2.5	SUMMARY STAFF REPORT: Gives staff requirements and costs for affiliated cost centers and aggregate totals at this cost center.
3.0		EQUIPMENT
	3.1	EQUIPMENT REPORT: Types and cost of equipment required for this cost center.
	3.2	SUMMARY OF EQUIPMENT OPERATING COSTS: Equipment costs aggregated at this cost center.
4.0		SERVICE
	4.1	SERVICE DEPARTMENT REPORT: One report for each service department used by the cost center. Gives: number and cost of service staff, space required in square feet and cost, number and operating cost of equipment.
	4.2	COST CENTER SERVICE DEPARTMENT SUMMARY REPORT: Gives all service departments used by the cost center.
5.0		SPACE
	5.1	SPACE - NIGHT
	5.1.1	CONTACT HOUR SUMMARY FOR NIGHT CLASSROOM ACTIVITIES: This report shows the contact hours required for each size and type of classroom by night activities.
	5.1.2	CONTACT HOUR SUMMARY FOR NIGHT INSTRUCTIONAL LABORATORY ACTIVITIES: This report shows the contact hours required for instructional laboratories of each size and type by night activities.

5.1.3 CONTACT HOUR SUMMARY FOR NIGHT INSTRUCTIONAL SPECIAL LABORATORY ACTIVITIES: This report gives the contact hours required by night activities for instructional special laboratories by each size and type of laboratory.

5.2 SPACE - DAY

5.2.1 ACTUAL SPACE REQUIRED FOR DAY CLASSROOM ACTIVITIES: This report shows the actual space required for day classroom activities.

- The activity number is the internal CAMPUS model code.
- The sections expected represents the number of sections for that activity based on the enrolment and desired section sizes.
- It also reports on the type of classroom required, the number of classrooms of that type, and the size of classroom required.
- The station occupancy represents the percentage of seats occupied in the size of the room chosen when a section of the size indicated is scheduled in that room.
- The number of hours per week the rooms are required represents the total number of hours per week in that size and type of room for all sections for this particular activity.
- The number of equivalent square feet represents the theoretical amount of space required by that activity based on the length of the teaching week at the institution and the utilization of rooms experienced with the institution's scheduling system.
- The actual square feet required by an activity is computed after analyzing all the requirements for a similar type and size of classroom from all other activities. For example, if no other activity required that type and size of classroom, then the physical size of the room in square feet would be charged completely to that activity.
- The square foot difference is the equivalent square feet subtracted from the actual square feet. Where this difference is very small the activity utilizes space efficiently: i.e. many other activities require a similar size and type of room during the week.

5.2.2 DAY CLASSROOM ACTIVITIES - CONTACT HOUR SUMMARY: This report shows the contact hours required for each type and size of classroom for day time activities requiring classroom space.

5.2.3 DAY CLASSROOM ACTIVITIES - ROOMS REQUIRED: This report is the number of classrooms required of each size and type.

- The number of classrooms required is computed by dividing the total contact hours by the length of a teaching week in hours and multiplying by the reciprocal of the room utilization of the institution.

5.2.4 DAY CLASSROOM ACTIVITIES - STATION OCCUPANCY: This report shows the average station occupancy that would be experienced by loading the particular section sizes of all day activities requiring classroom space into each size and type of classroom.

5.2.5 DAY CLASSROOM ACTIVITIES - SQUARE FEET REQUIRED: This report indicates the number of square feet of each type and size of classroom required by the cost center.

- This figure is computed by multiplying the number of rooms required of each type and size times the space planning factor in terms of the number of square feet per station.

5.3 INSTRUCTIONAL LAB SPACE - DAY

5.3.1 ACTUAL SPACE REQUIRED FOR DAY INSTRUCTIONAL LABORATORY ACTIVITIES: This report shows the space requirements for day activities requiring instructional laboratory space.
-The description of each column on the report is the same as that described for the identical report on day classroom activities. The report number is 5.2.

5.3.2 DAY INSTRUCTIONAL LABORATORY ACTIVITIES - CONTACT HOUR SUMMARY: This report gives the number of contact hours required for each type and size of instructional laboratory for day activities requiring this type of space.

5.3.3 DAY INSTRUCTIONAL LABORATORY ACTIVITIES - ROOMS REQUIRED: This report shows the number of instructional laboratories of each type and size required by this cost center for the day activities it supports requiring this type of space.

5.3.4 DAY INSTRUCTIONAL LABORATORY ACTIVITIES - STATION OCCUPANCY: This report shows the average station occupancy in instructional laboratories of each type and size for day time activities that will be scheduled into this particular type of space.
-The average station occupancy is computed by examining the station occupancy for all the individual activities requiring different sizes and types of instructional laboratories.

5.3.5 DAY INSTRUCTIONAL LABORATORY ACTIVITIES - SQUARE FEET REQUIRED: This report indicates the number of square feet required for each type and size of instructional laboratory for the day time activities that this cost center supports.
-The number of square feet required is computed from the number of rooms required multiplied by the number of square feet per station required for each size and type of laboratory.

5.4 SPECIAL LABORATORY SPACE - DAY

5.4.1 ACTUAL SPACE REQUIRED FOR DAY INSTRUCTIONAL SPECIAL LABORATORY ACTIVITIES: This report shows the space requirements for each activity requiring instructional special laboratory space.
-A description of each column on the report can be found on the description of the identical report used for day activities requiring classroom space.

5.4.2 DAY SPECIAL LABORATORY ACTIVITIES - CONTACT HOUR SUMMARY: This report shows the number of contact hours required for each size and type of laboratory for all activities supported by this cost center that require instructional special laboratory space.

5.4.3 DAY SPECIAL LABORATORY ACTIVITIES - ROOMS REQUIRED: This report shows the number of instructional special laboratories required of each type and size.
-The number of rooms required is computed by dividing the number of contact hours for each size and type of laboratory by the length of the teaching week in hours and multiplying by the reciprocal of the room utilization experienced through the institution's scheduling system.

5.4.4 DAY SPECIAL LABORATORY ACTIVITIES -STATION OCCUPANCY: This report shows the average station occupancy expected for each type and size of special laboratory.

5.4.5 DAY SPECIAL LABORATORY ACTIVITIES - SQUARE FEET REQUIRED: This report shows the number of square feet required for each type and size of instructional special laboratory.
- The total number of square feet of instructional special laboratory space required by a cost center is computed by adding all the elements of this matrix.

5.5 OFFICE SPACE REQUIREMENTS: This report indicates the number of square feet of office space required by a cost center broken out by each type of rank of staff.
- A subtotal is given for academic staff, academic support staff, non-academic staff, and service department staff. These four subtotals are added to get the total office space requirements for the cost center.
- On the lower part of the report the office space requirements for directly affiliated cost centers at all levels are shown and added in to get the aggregate office space requirements for this cost center.

6.0 SPACE

6.1 COST CENTER SPACE REQUIREMENTS

6.1.1 COST CENTER SPACE REQUIREMENTS: This report shows the square foot requirements for classroom, instructional laboratory, instructional special laboratory, office, and service space.
- The maintenance cost for each category of space is also reported in dollars.
- The total space requirements and maintenance budget for the cost center are shown.

6.1.2 COST CENTER SPACE REQUIREMENTS AND MAINTENANCE COST SUMMARY: This report shows the space requirements and maintenance cost for the particular cost center being considered, and for directly affiliated cost centers.
- The aggregate requirements for cost centers up to and including this particular cost center are shown.
- The total maintenance cost and the subtotal for each affiliated cost center are rounded to the nearest thousand dollars.

6.2 COST CENTER SPACE REQUIREMENTS

6.2.1 COST CENTER SPACE REQUIREMENTS BY SERVICE CODE

6.2.2 TOTAL SPACE REQUIREMENTS BY SERVICE CODE FOR ALL COST CENTERS: This report shows the total space required by a cost center broken out by various services or utilities that would have to be provided for the space.
- This information is assembled by examining the total characteristic codes attached to each type of space.
- We can thus see the number of square feet and the percentage of the total square feet required that must be air-conditioned, carpeted, have a heavy duty floor, etc.

6.3 REQUIRED VERSUS AVAILABLE SPACE BY SPACE CATEGORY: This report groups the total space requirements of a cost center into various space categories and matches the required space to that available to that cost center.
- The maintenance cost is also given for each space category in dollars.
- A square foot shortage or surplus is computed and printed when the required space is compared to the available space.

6.4 SPACE MATCHING

6.4.1 SPACE MATCHING REPORT FOR CLASSROOMS AND INSTRUCTIONAL LABORATORIES: This report indicates the results of matching requirements for classrooms and instructional laboratories to the number of rooms available.
- The shortage or surplus of rooms for each type and size of classroom and instructional laboratory is printed.
- Information is given on a report which indicates if a classroom or laboratory manipulation is performed across type or size of room. For example, a shortage of a small size room could be fulfilled by an extra room of some larger size. There would be a marked drop in station occupancy, but this may be tolerated instead of building an extra small size room. However, currently these manipulations are not programmed in the model.

6.4.2 SPACE MATCHING REPORT FOR INSTRUCTIONAL SPECIAL LABORATORIES: This report shows the results of matching requirements for instructional special laboratories to the available laboratories.
- The shortage or surplus of special laboratories for each size and type of laboratory is given.
- Because of the highly specialized nature of instructional special laboratories, no manipulation by size or type is performed.

6.5 SPACE CAPITAL COST REPORT: This report indicates the capital required to construct any shortage of space.
- The space shortage in square feet is multiplied by a dollar per square foot construction cost to give the capital required.
- The space shortage by space category is an accumulative array. The space shortages are accumulated over time if no construction takes place during the particular session. The message at the bottom of the report indicates that that policy has been simulated.
- The net to gross space is an added amount of space reflecting wall thickness, etc.

7.0 SUMMARY

7.1 DIRECT LOAD GENERATED BY ACTIVITIES (CONTACT HOURS): Resource requirements of each activity in contact hours.

7.2 DIRECT LOAD GENERATED BY ACTIVITIES - SUMMARY (DOLLARS AND SQ. FT.)

7.3 DIRECT LOAD GENERATED BY ACTIVITIES

7.3.1 DAY CLASSROOM ACTIVITIES SPACE REPORT

7.3.2 NIGHT CLASSROOM ACTIVITIES SPACE REPORT

7.3.3 DAY INSTRUCTIONAL LABORATORY ACTIVITIES SPACE REPORT

7.3.4 NIGHT INSTRUCTIONAL LABORATORY ACTIVITIES SPACE REPORT
7.3.5 DAY SPECIAL LABORATORY ACTIVITIES SPACE REPORT
7.3.6 NIGHT SPECIAL LABORATORY ACTIVITIES SPACE REPORT: This report is produced for day and night classroom, instructional laboratory, and instructional special laboratory activities.

- The report is produced as each cost center is processed and shows the number of equivalent square feet required for each activity supported by that cost center.
- The activity number is the internal CAMPUS model code.
- The enrolment is the number of students taking that course.
- The desired section size is the number of students desired in each section of that activity.
- The section sizes show the actual number of students in each section of the activity.
- The number of the particular type and size of classroom required is shown.
- The station occupancy represents the percentage of stations in the classroom that would be filled by the particular section size.
- The hours per week that the rooms are required is the total hours for all sections.
- The total square feet represents the number of square feet required by this activity based on the current room utilization and the length of the teaching week.

7.4 SUMMARY OPERATING REPORT (FOR THIS COST CENTER ONLY): Summary of student loads, space requirements and operating costs for this cost center.

7.5 SUMMARY OPERATING REPORT (AGGREGATE REPORT): as 7.4 with totals including all affiliated cost centers.

OVERTIME REPORT
INDEX

Type

1.1 STUDENT AND ENROLLEE LOAD: Included in it are the arrays summed over each period and averaged for the period, for a maximum of ten periods. They are written out with values for the particular cost center, the cost centers affiliated to it, if any, and totals where necessary.

1.2 STAFF COSTS: It indicates staff costs, a breakdown of academic staff number and aggregate staff cost. Each of these sections are broken down even further. Totals and subtotals are also included. This report is written for each cost center requiring it.

1.3 SPACE REQUIREMENTS: Data is broken down into the space categories of office, classroom, instructional laboratory, special laboratory and service department with a total. This report is written out for any cost center requiring it.

1.4 OPERATING COSTS: Included in this report are staff, equipment, maintenance, miscellaneous, space and service costs. The actual numbers are printed out with total staff cost, total equipment cost as subtotals, and total operating cost as the grand total. In the same report, there is a section for total aggregate cost.

1.5 SUMMARY REPORT: This section summarizes data in report 1.1 to report 1.4 inclusive. It illustrates staff costs in some detail. However only totals are given for equipment, miscellaneous, and maintenance costs. The total aggregate cost is also included. The space (in square feet) is shown in some detail: that is, shown by space type category. The affiliated students are also shown in this report as they appeared in report 1.1. The revenue is written for each cost center requiring it. A section of indicators occurs at the end of this report, including such itens as 'cost per student ($)', 'space per student (sq. ft.)' etc.

Project PRIME Reports

Report Number	Description	Author
1	Test Implementation of CAMPUS (A Computer Based Simulation Model) for Higher Education Administration and Planning in Minnesota, March 1970.	Andrew, Cordes, Lorents
2.	An Introduction to Project PRIME and CAMPUS-MINNESOTA, November 17, 1970.	Cordes
3.	PPBS in Higher Education: An Annotated Bibliography, May 1971.	Cordes
4.	PPBS in Education: Concept, Operation, Status, and a School of Business Administration Example.	Cordes
5.	Program Costing with the CAMPUS Simulation Model, June 1971.	Cordes
6.	Faculty Activity Analysis and Planning Models in Higher Education, June 1971.	Lorents
7.	A Faculty Activity Information Subsystems and CAMPUS-MINNESOTA, June 1971.	Lorents
8.	Operational Overview of the CAMPUS Simulation Model, June 1971.	Cordes
9.	Using a Planning Model in Higher Education, (in progress).	Fisher
10.	Resource Analysis Models in Higher Education: a Synthesis (in progress).	Cordes
11.	Converting CAMPUS V to CAMPUS-MINNESOTA (in progress).	Davitt
12.	CAMPUS-MINNESOTA User Information Manual June 1971.	Andrew
13.	Applying Input/Output Analysis and the El FYD Model to Higher Education (in progress).	Cordes
14.	Mid-Year Progress Report, January 1971.	Andrew, Cordes, Lorents
15.	Case Studies of Resource Simulation in Education (A High School; A Junior College; A State College and two Schools of a Large University, (in progress).	
16.	Final Report of Project PRIME (in progress).	Andrew, Cordes, Lorents